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AN EXPLORATION OF THE USE OF AN  
ADJUSTED BASIS OF FIXED ASSETS IN  
MEASURING PROFITABILITY FOR SHAREHOLDERS  
AND PROSPECTIVE INVESTORS

James Michael Haynes



AN EXPLORATION OF THE USE OF AN ADJUSTED BASIS OF FIXED ASSETS IN  
MEASURING PROFITABILITY FOR SHAREHOLDERS AND PROSPECTIVE INVESTORS

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Bachelor of Business Administration

Case-Western Reserve University, 1964

A Thesis Submitted to the School of Government and  
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Requirements for the Degree of  
Master of Business Administration

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## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
The Problem in Perspective	
The Research Question	
Scope of the Study	
Purpose and Utility of the Study	
Approach	
Organization of the Study	
II. THE NATURE AND UTILITY OF FINANCIAL STATEMENTS . . . . .	10
The Principal User and a Changing Emphasis	
The Effects of Inflation on Conventional Reporting	
Severity of Effects on Long-Lived Assets	
III. THE HISTORICAL COST CONCEPT . . . . .	23
Theoretical Justification	
Some Deficiencies of the Concept	
The Cost vs Value Controversy	
Objectivity in Perspective	
IV. SOME ALTERNATIVE BASES OF VALUING FIXED ASSETS . . . . .	40
Inherent Connotations of Valuation	
General Price Level Adjustments	
An application of general index numbers	
Opposition to general price-level adjustments	
The Economic Value Basis	
Current Cost/Replacement Cost	
Appraisal value	
Specific indexes	
Limitations - theoretical and practical	
A Choice - The Most Viable Alternative	
V. MEASUREMENT OF PROFITABILITY . . . . .	75
The ROI Concept	
The denominator - the element of fixed assets in the investment base	
The numerator - depreciation as a determinant of net income	
Recovery of "Cost"	
The Problem of Capital Maintenance	
Adjustment of Depreciation to Match Current Revenues	
Historical Cost vs General Price Level Adjusted - A Comparative Illustration	



VI. SUMMARY AND CONCLUSIONS . . . . .	100
BIBLIOGRAPHY . . . . .	109



## CHAPTER I

### INTRODUCTION

#### The Problem in Perspective

Financial accountants have characteristically held tenaciously to the cost basis for representing assets in the accounting records and thereby on financial statements. Cost, they have argued, is the result of a bargained transaction and is therefore objective. Implicit in this reasoning is one of the assumptions of conventional accounting procedure--that the yardstick used in financial measurement is a constant. This supposition is one of convenience, and everyone knows it is not strictly valid. Yet, the assumption has been dominant so long in accounting practice that it has become ingrained in the habits of thought of both those who prepare and those who use financial statements, resulting in a widespread tendency to be insensitive to its inherent limitations. The striking fact about the past twenty-five years has been an increased acquiescence in practice to this long-standing blind spot in accounting; this notwithstanding the fact that it has been a period in which lack of stability in the value of the dollar has been very much in evidence.<sup>1</sup>

The effects of inflation, as evidenced by the reducing purchasing power of our unit of financial reporting, the dollar, are not recognized in today's conventional accounting procedures.<sup>2</sup> In the field of corporate

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<sup>1</sup>William A. Paton, Corporate Profits (Homewood, Illinois: Richard D. Irwin, Inc., 1965), p. 35.

<sup>2</sup>Anson Herrick, "Inflation in Accounting," Journal of Accountancy, (September, 1960), 51.





accounting the impact has been in two main directions: (1) understatement of corporate resources employed; (2) overstatement of corporate profits. As to the extent of these basic misstatements there is room for argument, but that the amounts are substantial for many individual companies and for industry as a whole, can hardly be denied.<sup>3</sup>

All of our postwar history has been a history of decline in general purchasing power. The question has become not whether prices will move upward, but by how much. At the end of 1968, the gross national product implicit price deflator stood at more than double its 1945 level, and the consumer and wholesale price indexes were even higher. There have been many complaints that accountants have failed to recognize this inflation.<sup>4</sup> Quite to the contrary, the question of the importance of the variation between conventionally accounted income and "economic" income has been debated at length. There has been strong advocacy by accountants of prominence of the necessity for modifying conventional accounting methods to recognize the effect of inflation on depreciation as a major cost factor. On the other hand, objectors to change point out the total impracticability of fully recognizing all effects of inflation, and the inconsistency of recognizing the effect on depreciation and ignoring the effect on other cost factors. They hold that such a change would require a new concept of net income which, manifestly, would be confusing to the readers of financial statements.<sup>5</sup>

In some cases in which provisions for "price-level depreciation" have been reported, auditors have been careful to point out that such

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<sup>3</sup>Paton, Corporate Profits, p. 36.

<sup>4</sup>Sidney Davidson, "Accounting and Financial Reporting in the Seventies," Journal of Accountancy, (December, 1969), 32.

<sup>5</sup>Herrick, "Inflation in Accounting," 51.



provisions were not within the scope of generally accepted accounting principles. At the same time, however, they have asserted that the results were "more fairly presented" after such adjustments had been made.<sup>6</sup> The fact remains that the accounting profession is aware that the historical cost postulate is deficient in several major respects.<sup>7</sup> Recognizing that "if an investment is made in assets in 1945 and recovered in 1962, the resultant amount of gain or loss is not measurable in any meaningful sense by a comparison of dollars received (recovered) with dollars paid out (invested),"<sup>8</sup> the staff of the Accounting Research Division of the American Institute of Certified Public Accountants undertook a full scale study of the Financial Effects of Price Level Changes. Included in the study are treatises on fixed asset revaluation as well as price-level adjusted depreciation.

The amounts by which the various financial statement items are affected by changes in the value of the dollar depend on (1) the amount of change in prices since the item was acquired and (2) the relative size, in dollars, of the items affected. The first factor involves the velocity of turnover, i.e. the length of time that the item is on hand. Of all of the assets of a firm, the fixed assets (plant and equipment) ordinarily have the lowest rates of turnover. It is not unusual to find a plant in use more than 25 years after its purchase. The adjustment to state this balance

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<sup>6</sup>Harvard Business School Accounting Round Table, The Measurement of Property, Plant, and Equipment in Financial Statements (Boston: Harvard University, 1964), p. 7.

<sup>7</sup>J. A. Mauriello, Accounting for the Financial Analyst (Homewood, Illinois: Richard D. Irwin, Inc., 1967), p. 108.

<sup>8</sup>AICPA Accounting Research Division, Accounting Research Study No. 6: Reporting the Financial Effects of Price-Level Changes (New York: AICPA, 1963), p. 8 (hereafter referred to as ARS 6).



sheet value and its related depreciation charge in terms of current dollars must take into account the entire price change during the past 25 years. Even with cyclical price fluctuations, the adjustment is likely to be significant because of the long-term upward trend in prices that has been experienced in this country.<sup>9</sup>

The relatively large size, in dollars, of fixed assets and depreciation charges is a second reason why price-level adjustments of these accounts frequently will be large. Although the dollar amounts of fixed assets held by any firm are somewhat dependent upon the type of business operation, it is not uncommon to find that in a manufacturing business such assets represent a major portion of total assets.<sup>10</sup>

A major objective of financial accounting is to provide information useful in making economic decisions.<sup>11</sup> Accounting and financial reporting seek (or should seek) to provide the raw materials for financial analysis by growing numbers of investors, most of whom are more than willing to switch freely among securities to take advantage of short-run gains.<sup>12</sup>

One of the foremost complaints most frequently voiced about financial reporting is that financial reports do not provide enough currently relevant information. For most of its recent history, accounting has been involved in a competition between objectivity and economic

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<sup>9</sup>Ralph D. Kennedy and Stewart Y. McMullen, Financial Statements: Form, Analysis and Interpretation (5th ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 444.

<sup>10</sup>Ibid., p. 445.

<sup>11</sup>Solomon Fabricant, "Inflation and Current Accounting Practice: An Economist's View," Journal of Accountancy, (December, 1971), 44.

<sup>12</sup>Davidson, "Accounting and Financial Reporting in the Seventies," 31.





realism, between simplicity and relevance, with simplicity and auditability showing up in the winner's circle with distressing regularity. If accounting is to be responsive to the needs of the investor and of the larger and more diverse user public of the 1970's, some reversal of the traditional results of this contest will be necessary.<sup>13</sup>

The allocation of investor capital within the economic system is heavily influenced by the cumulative effect of investor decisions. The firm's reported net income and financial position are among the primary quantitative measurements affecting these decisions. Since valuation of long-lived assets may have substantial effect on measurements contained in these reports, it follows that its importance is unquestioned.<sup>14</sup>

While it is apparent that the accounting profession has recognized the limitations of the historical cost basis in the wake of a sustained period of rising price levels, the treatment given by the profession has been largely circumscribed by theoretical considerations. Yet, financial accounting as the "language of business" does not exist merely as a concept in theory, but rather for the purpose of measuring the operations and financial position of a business and to otherwise serve the needs of investors and other users of financial information. Shareholders and the public at large as potential investors must make far-reaching decisions on the basis of accounting reports. If the relevance of the financial information contained therein is diminished by a fluctuating price level, the quality of the decision based on such information is of questionable

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<sup>13</sup> Ibid., 29.

<sup>14</sup> American Accounting Association, Committee on Concepts and Standards--Long Lived Assets, "Accounting for Land, Buildings and Equipment," Accounting Review, XXXIX (July, 1964), 693.





value.

The effect of rising price levels in relation to fixed assets is compounded in the financial statements--in the measurement of income through depreciation charges in the Income Statement, and in the representation of assets, the invested capital base, in the Balance Sheet. Inasmuch as profitability is often measured by standard financial ratios containing Net Income and Return on Net Assets or Investment (Asset) Turnover as components, it is immediately evident that the measurement of fixed assets on the historical cost basis and on some alternative basis will yield widely differing measures of profitability.

#### The Research Question

It will be the purpose of this paper to examine whether a departure from the historical cost basis of valuing fixed assets would provide a more valid measure of profitability for stockholders and prospective investors.

#### Scope of the Study

The scope has been necessarily limited to provide for adequate treatment of the subject within the constraints of time. Accordingly, while it is recognized that financial information is of use to regulatory agencies, has implicit income tax considerations, and forms the basis for managerial accounting information, each of these could easily provide an alternative thesis topic. Rather, it was decided to confine the study to the implications upon the stockholder or prospective investor who usually has access to no additional or supplementary financial information other than that contained in annual or quarterly reports. Accounting Research Study No. 6, as well as other professional literature, give extensive treatment to all



balance sheet items including inventories and monetary items in relation to price-level changes. While recognizing the implications of price-level changes on each and every account and statement item, for reasons cited above, it was determined that fixed assets most acutely demonstrated the effects of fluctuations in the price-level, both in relation to their long life and their duality effect on profitability measures. Accordingly, discussion of alternative bases of valuation is so circumscribed.

#### Purpose and Utility of the Study

It is hoped that this study will have practical implications in providing more reliable and valid measures of profitability as derived from readily accessible financial information. Additionally it is anticipated that this study will further bridge the gap between accounting conventions and rudimentary financial analysis. Hopefully there will emerge a reconciliation of the traditional precepts of the accounting profession with the economic realism so necessary to the stockholder and prospective investor for decision-making in today's financial climate.

#### Approach

This study necessarily draws exclusively on secondary material--contemporary literature, both text and periodical but weighted in favor of the latter. As available and applicable, an attempt has been made to place special emphasis on literature emanating during the past ten years. Relevant sections of all material listed in the bibliography has all been perused and has been either explicitly or implicitly employed in compiling this study and drawing conclusions therefrom. Analytical methods utilized are primarily inductive.



### Organization of the Study

Chapter Two will focus on financial statements and explore the question of the relationship of accounting profits portrayed therein to investment decisions. Coordinately, recent price change history, and the trends in inflation will be treated. Implicit in this discussion will be the limitations of conventional financial statements in the face of steadily diminishing purchasing power and the implications of investor decisions based thereon.

In Chapter Three we will look at some of the traditional accounting precepts which have acted to resist digression from the cost basis. We shall examine the accounting concept of cost, the justification advanced for the historical cost basis and the deficiencies of this basis, particularly in relation to a fluctuating price level and the impact of technology. We shall also consider the relationship of other accounting conventions including the stable dollar assumption, uniformity, conservatism, reliability and objectivity. Objectivity will receive an extended treatment in its relation to considerations of usefulness and economic realism. It is hoped that there will emanate a flickering of reconciliation between these traditional accounting precepts and a consideration of departure from the historical cost basis.

Chapter Four will deal with some alternative bases of fixed asset valuation as discussed in contemporary literature including current value, replacement value and economic value. Inasmuch as the decline in general purchasing power has been the object of much of the discussions concerning the limitations of conventional accounting and recommended departure from the historical cost basis, purchasing power adjustments will be discussed in





depth. Included will be a consideration of the use of specific versus general price indices, a brief narrative on the use of price adjusted financial statements, and some points of opposition to price level adjustments. It is anticipated that out of this discussion will emerge the feasibility of fixed asset revaluation on some basis, both utilitarian and theoretically justifiable.

Chapter Five will examine in depth the components of profitability. The role of depreciation in determination of Net Income will be treated at length including a discussion of the purposes of depreciation, apparent deficiencies of traditional procedures and some of the alternative treatments advocated. Also considered will be the "funding theory" misconception of depreciation and the problem of capital maintenance. We shall then proceed to a consideration of the fixed asset base in relation to the measure of invested capital, the impact of inflation thereon, and the relationship between assets and the measurement of profitability. The discussion will conclude with a treatment of comparative ratio analysis, using historical cost and some alternative basis, in measuring profitability via the utilization of invested capital assets and the rate of return.

Chapter Six will present a summary and conclusions derived concerning the feasibility and utility of fixed asset revaluation as a more valid measure of profitability for the shareholder, or prospective investor.





## CHAPTER II

### THE NATURE AND UTILITY OF FINANCIAL STATEMENTS

#### The Principal User and a Changing Emphasis

The nature of financial statements, as stated by the American Institute of Certified Public Accountants, is as follows:

Financial Statements are prepared for the purpose of presenting a periodic review or report on progress by the management and deal with the status of the investment in the business and results achieved during the period under review. They reflect a combination of recorded facts, accounting conventions, and personal judgments, and the judgments and conventions applied affect them materially . . .<sup>1</sup>

In earlier days accountants were primarily concerned with the construction of the statements. Today the function of analysis and interpretation has assumed such significance that it must be considered carefully when the statements are prepared so that their content, arrangement, and form will contribute to the effectiveness of a study of the data.<sup>2</sup>

The balance sheet reveals the financial condition or status of a business, as reflected in the accounting records, at one particular moment in time. The balance sheet may also be described as a statement of investment--a dual analysis and presentation of the sources of capital and the investment of the capital in assets. The net amount of capital obtained to date from each of several sources is classified according to terms under

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<sup>1</sup>Examination of Financial Statements by Independent Public Accountants, bulletin prepared and published by the American Institute of Certified Public Accountants, January, 1936, p. 1, quoted in Kennedy and McMullen, Financial Statements, p. 7.

<sup>2</sup>Kennedy and McMullen, Financial Statements, p. 6.



which the capital was secured. The net amount of capital invested to date in each asset item is classified according to the nature of the commitment of capital and the frequency of opportunity to decide about the recommitment of capital into specific investments. This approach to the balance sheet emphasizes that it is not and does not purport to be a statement of value; it is only a listing of the sources and investments of capital.

The income statement of a manufacturing or trading concern reveals the net income or net loss resulting from the operation of the business during the period covered by the report. It is thus a statement of activity and the results of that activity.<sup>3</sup>

Published financial statements are thus the means by which investors inform themselves of the capacity of a firm to carry on its operations and to adapt itself to changes in its environment. They are also the basis on which investors may judge the general performance of companies and their officers. The propriety of all judgments with respect to the future and the past depends on the adequacy with which what has actually transpired in each successive period is represented in the financial statements of that period.<sup>4</sup> It is important to note that historical financial statements purport to fulfill managements fiduciary accountabilities and the needs of persons having bona fide interests, including the stockholders, only to the extent of presenting fairly the financial position and results of operations for the period in accordance with generally accepted accounting principles consistently applied.<sup>5</sup>

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<sup>3</sup>Ibid., p. 5.

<sup>4</sup>R. J. Chambers, Financial Management (3rd ed.; Sidney: The Law Book Company, Ltd., 1969), p. 232.

<sup>5</sup>Paul Grady, Inventory of Generally Accepted Accounting Principles for Business Enterprises (New York: AICPA, 1965), p. 299.



Financial statements are used for different purposes and in different ways by a great many people. Stewardship accounting is less significant, than was the case 30 years ago, while the presentation of accounting data for making decisions as to future is more important.<sup>6</sup> Managements of a business enterprise and members of the accounting profession obviously have a continuous concern and obligation to present financial statements of the greatest possible usefulness to investors and others having bona fide interests. Yet, financial statements, although indispensable as an instrument for partial fulfillment of fiduciary accountabilities, have serious limitations in providing a basis for investment decisions. They are historical and based on cost, not value. It is thus incumbent upon investors to bear in mind that in times of inflation that historical costs of items purchased in prior periods are usually less than current costs, resulting in a reported income which probably exceeds income fully stated in current dollars.<sup>7</sup>

For one user, the security analyst, financial statements are the most important tools used in making decisions about investments. Market expectations are heavily weighted by the story told by accounting. This story includes information on the nature of the company, the quality of past management and other valuable insights which contribute to projections of future earnings, dividends, and prices. Since the security analyst is dealing with shares of stock, rather than with whole companies, he has an intense interest in earnings and assets per share. For example, he wants to know what the company actually earned last year, which may be quite

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<sup>6</sup>George R. Catlett, "Better Objectives Needed to Improve Accounting Principles," Journal of Accountancy, (October, 1969), 64.

<sup>7</sup>Grady, Inventory, p. 300.





different from what is reported by the company. Thus, in order to gain an understanding of the company, he is compelled to adjust reported earnings to reflect actual earnings from ordinary operations on a consistent basis.<sup>8</sup> Of more relevance for purposes of this paper is the fact that the accounting techniques that may distract or obscure actual economic results and financial position are probably of greatest importance to the non-professional since, for the most part, professional analysts can make the necessary adjustments from a penetrating appraisal of the statements and notes appended thereto.<sup>9</sup> Of these non-professionals, shareholders and prospective small investors may be considered the prime users.

There is considerable precedent for identifying the primary users of published financial statements as the investor group. This is a natural and logical outgrowth of the securities legislation that has been so effective in stimulating increased availability and improved quality of financial information.<sup>10</sup> The American Accounting Association in acknowledging the investor orientation of accounting has stated in a committee report, "Specifically, the purpose of (published) financial statements is to assist the investor in making his own qualitative judgments about a firm."<sup>11</sup> George O. May commented:

The purpose of furnishing accounts to shareholders must be not only to afford them information in regard to the

<sup>8</sup>Frank E. Block, "A Security Analyst Looks at Accounting," Financial Executive, (November, 1971), 22.

<sup>9</sup>T. R. Dyckman, Studies in Accounting Research #1; Investment Analysis and General Price-Level Adjustments (Evanston, Illinois: American Accounting Association, 1969), p. 12.

<sup>10</sup>Harvard Round Table, Measurement, p. 21.

<sup>11</sup>American Accounting Association Committee, "Accounting for Land, Buildings, and Equipment," 693.





results being achieved by those to whom they have entrusted the management of the business, but to aid them in taking appropriate action to give effect to the conclusions which they have regarding such accomplishments . . . The only practical way in which an investor can today give expression to his conclusions in regard to the management of a corporation in which he is interested is by retaining, increasing or disposing of his investment, and accounts are mainly valuable to him insofar as they afford guidance in determining which of these courses he shall pursue.<sup>12</sup>

There is considerable evidence that this purpose is not being adequately fulfilled. Some imply that the deficiency is by design. It has been stated that:

Corporate earnings are a major factor in determining the prices of common stocks . . . Granting that official financial statements do not always reflect the true earnings, they constitute, nevertheless, the principal earnings data upon which the investing public and business analyst must rely.<sup>13</sup>

It has been further asserted that:

There is a widespread view among managers and accountants that the market responds directly to changes in reported earnings per share, that investors cannot see through the reported earnings data to the underlying economic facts which reports are supposed to depict. Believing this, and recognizing the stress on short run performance, many managements seem to be seeking that set of accounting practices or principles which will maximize reported earnings per share, at least in the short run.<sup>14</sup>

Given that the measurement of income has emerged as the principal function of accounting,<sup>15</sup> it seems more reasonable to believe that failure to more validly measure income is not based on any concerted attempt to deceive,

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<sup>12</sup>Quoted in: Paul Grady (ed.), Memoirs and Accounting Thought of George O. May (Chicago: The Ronald Press, 1962), p. 67.

<sup>13</sup>Quoted in: Delmas D. Ray, Accounting and Business Fluctuations (Gainesville, Fla.: University of Florida Press, 1960), p. 15.

<sup>14</sup>Davidson, "Accounting and Financial Reporting in the Seventies," 30.

<sup>15</sup>Ray, Accounting and Business Fluctuations, p. 14.



at least on the part of professional accountants who must audit and certify the representations of management, but rather too rigid an adherence to conventions which are no longer relevant. Thus, in determining reporting practice, consideration of investor's needs possibly has been expressed negatively--to make statements not misleading. As George O. May once observed, "preoccupation with the importance of not misleading investors has obscured the desirability of enlightening them."<sup>16</sup> The unfortunate consequence of this philosophy in a period of changing economic concepts and conditions appears to be inadvertent deception.

It has been proposed that the purposes of financial statements prepared for presentation of a publicly held corporation would necessarily include the following:<sup>17</sup>

(a) To provide the best possible basis for the stockholders to project the earnings and financial condition of the corporation.

(b) To provide the best possible basis for evaluating the performance of management. Yet, current accounting doctrines which suggest that the expression of financial condition should be limited to a cost made evident in the past, have at minimum given little attention to their effect on the validity of the balance sheet. Accordingly it has been rendered increasingly less usable as a financial tool.<sup>18</sup>

Starting from the position that accounting information is useful

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<sup>16</sup>Quoted in Donald E. Stone, "The Objective of Financial Reporting in the Annual Report," Accounting Review, XLII (April, 1967), 336.

<sup>17</sup>Robert L. Dickens and John O. Blackburn, "Holding Gains on Fixed Assets: An Element of Business Income?" Accounting Review, XXIX (April, 1964), 314.

<sup>18</sup>Herbert C. Knortz, "Economic Realism as a Reporting Essential," Financial Executive, (March, 1969), 22.





to the extent that it facilitates decision making, it has been postulated that financial statements are useful because quantitative data are helpful in making rational economic decisions, i.e. in making choices among alternatives so that actions are correctly related to consequences.<sup>19</sup> Thus, while conventional accounting reports may have an historical perspective, the value of those reports cannot be measured solely by the accuracy with which they reflect the past. Rather, most users, shareholders and investors, are not interested at all in the past per se, but only to the extent that the past can be used to reveal the future.<sup>20</sup>

The accounting profession's preoccupation with traditional conventions seems to suggest that it has lost sight of the objectives of financial accounting as set forth above; that they have been more concerned with means rather than with ends. While such a conceptualization of the problem may have validity, it is not sufficient to placate the users of financial information. It has been asserted:

The APB (Accounting Principles Board) and the entire accounting profession are rapidly heading into a period when the objectives must be (re) established and the prices put together on a rational and consistent basis. Investors and other users of financial statements will not continue to accept the pronouncements of a profession which has not developed sensible and understandable objectives in the light of current needs of those who use financial statements.<sup>21</sup>

If accounting conventions once considered useful are now deemed deficient, what then has caused the diminishment of their utility? Let us now turn our attention to economic forces responsible for this metamorphosis and their

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<sup>19</sup> Lyn D. Pankoff and Robert L. Virgil, "On the Usefulness of Financial Statement Information: A Suggested Research Approach," Accounting Review, XLV (April, 1970), 269.

<sup>20</sup> Ibid., 270.

<sup>21</sup> Catlett, "Better Objectives," 63.





recognized effect on conventional financial statements.

The Effects of Inflation on Conventional Reporting

The effects of inflation, as evidenced by the reducing purchasing power of our unit of financial reporting, the dollar, are not recognized in conventional accounting procedures.<sup>22</sup> Accordingly, the substantial inflation which has cut the purchasing power of the dollar by about half since 1940 has considerably impaired the usefulness of financial statements based entirely on historical costs.<sup>23</sup> The principal point at which serious misstatement occurs is where expenses are based in considerable measure on costs incurred in earlier periods and hence recorded in terms of earlier generations of dollars. In essence then present-day corporate reporting and accounting display a crucial weakness in showing a level of earning power substantially above actual performance.<sup>24</sup> Especially discouraging is the reticence of many accountants to recognize the severity of the problem, preferring instead the more comfortable implicit assumption that inflation has been less than moderate.<sup>25</sup> The facts indicate the contrary. During the two-year period 1969-1970, the general price level rose by 10 per cent, measured by GNP price deflator, and about the same when measured by the consumer price index. Since 1963, when the AICPA published its Accounting Research Study No. 6, the general price level has risen by 30 per cent, while the price rise has been 75 per cent since 1948, when the AICPA set up its Study Group on Business

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<sup>22</sup>Herrick, "Inflation in Accounting," 51.

<sup>23</sup>Solomon T. Flink and Donald Grunewald, Managerial Finance, (New York: John Wiley & Sons, Inc., 1969), p. 622.

<sup>24</sup>Paton, Corporate Profits, pp. 36-42.

<sup>25</sup>Fabricant, "An Economist's View," 43.



Income.<sup>26</sup> Thus, inflation affects the basic unit of measurement on which financial statements are based, and thus distorts the information on which users of financial information rely.<sup>27</sup> In effect then, under conventional accounting procedures, the dollar is an extremely poor unit of measurement, because its value or purchasing power is continually changing. The fact that conventional accounting adheres to an unstable measuring unit thus presents the greatest impediment to interpretation of its results as found in financial statements.<sup>28</sup> Even during periods of slow but steady price increases, such as the 1960's, there may be a significant distortion of published financial statements. This follows from the fact that "values" on such financial statements are expressed in dollars of varying size; as prices rise, the value of the dollar declines. Such statements are always distorted, and may be seriously misleading.

To make more explicit the seriousness of the effects alluded to above, the problem created by the instability of the dollar is two-fold.<sup>29</sup>

1. The amounts appearing on the financial statements of a given firm or of two different firms are not comparable because these amounts are expressed in dollars having different values.

2. Conventional published financial statements (relying heavily on dollar cost) fail to reflect the effect of changes in the value of the dollar upon the purchasing

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<sup>26</sup> Ibid.

<sup>27</sup> Ibid., 39.

<sup>28</sup> John N. Myer, Financial Statement Analysis (4th ed.; Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1969), p. 31.

<sup>29</sup> Kennedy and McMullen, Financial Statements, p. 435.



power of the resources of the firm.

An indication of the seriousness of the resulting distortion is revealed by such published comments as the following:

The reported net income of the 30 oil companies was \$763 millions in 1946 and \$1,219 millions in 1947, an increase of 60 per cent . . . But the charges for capital extinguishments (depreciation, depletion, etc.) . . . were inadequate to replace . . . this capital . . . The extent to which reported "profits" were thus in effect overstated can be approximately determined by adjusting the capital extinguishment charges which are expressed in historical dollars, so that they reflect current dollars . . . If this is done we find that the adjusted net income becomes \$418 millions in 1946 and \$513 millions in 1947, an increase of 23 per cent . . . It thus becomes apparent that the changing value of the dollar distorts the income account so that the reported net income ceases to be synonymous with profit.<sup>30</sup>

In brief, then, without adjustment of the figures the income statement suffers from price-level changes by the lack of comparability of the accounting figures, in that depreciation and similar costs fail to reflect the current price level, and therefore are not comparable with the current revenue figures. The resultant is a diminished significance of the reported net income. As a corollary, income taxes are based upon a concept of income which is questionable and which, in particular, discriminates against companies with large investments in plant and equipment when the price level is rising and in their favor when prices are falling. Additionally, the balance sheet suffers from lack of comparability of the various items. This aggregates to the net result that stockholders and other investors are not provided with information which enables them to properly interpret the operating results and to judge the relative effect of price-level changes upon a particular enterprise.<sup>31</sup>

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<sup>30</sup> Ibid., p. 442.

<sup>31</sup> Perry Mason, Price-Level Changes and Financial Statements (Columbus, Ohio: American Accounting Association, 1956), p. 11.





Severity of Effects on Long-Lived Assets

The amount of attention given in any discussion of inflation and declining purchasing power, to the deficiencies of depreciation as measured by conventional accounting procedures, suggests the extent to which this determinant of cost and thereby net income is affected by a changing price level. Coordinately, the fixed asset base from which the depreciation charge arises must be similarly affected. Let us then proceed to delineate the pertinent point of the foregoing for the purpose of this paper--namely the affect of fluctuating price levels on conventional balance sheet values of fixed assets and the related depreciation charges. The substantial inflation which has cut the purchasing power of the dollar by about half since 1940 has considerably impaired the usefulness of financial statements based entirely on historical costs. Most significantly, the major discrepancy between net income reported on an historical basis and net income computed in "current dollars" arises from the difference between depreciation on original cost in historical dollars and depreciation on that same original cost measured in current dollars of substantially less purchasing power.<sup>32</sup> The AICPA subscribed to this view when it acknowledged that in periods of price-level changes depreciation is usually the most drastically affected item on the operating statement, since it typically reflects the value of the dollar at many different points of time, depending upon when the various depreciable assets were acquired.<sup>33</sup> Under conventional accounting, a purchased facility is recorded as an asset using the number of dollars paid for it in the year of purchase, and this dollar amount becomes the basis for

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<sup>32</sup>Flink and Grunewald, Managerial Finance, p. 622.

<sup>33</sup>AICPA, ARS 6, p. 24.





depreciation expense for all the years of its useful life. The depreciation expense allocated to each year's revenues is expressed in the historical dollars of the year of purchase of the facility while the revenues are usually expressed in the dollars of the year of the income statement, or current dollars. Similarly, on the Balance Sheet, long-lived facilities (machinery, for example) purchased in different years (with historical dollars of varying purchasing power) are added together as if the dollars were all alike. Clearly, in a period of continually rising prices, as has been the experience in the U. S. since 1940, the effect of valuing long-lived assets at historical acquisition costs, and then computing depreciation expense on the basis of these costs is to understate the value of plant and equipment assets on the Balance Sheet and to understate the depreciation expense on the Income Statement. Reported earnings thus tend to be overstated.<sup>34</sup>

The reporting of the costs of resources, incurred over a period of years, in terms of dollars of substantially varying value would appear quite improper in that resulting financial statement figures are thus dependent upon what the purchasing power of money was at the time the transactions they reflect took place.<sup>35</sup> It should not be assumed that consideration of this factor should readily come to the fore to financial statement users, other than the most astute and highly trained analysts. At this point perhaps it may be ventured that under the economic conditions experienced over the past 30 years, conventional accounting procedures and the historical cost basis of representing fixed assets does not provide a satisfactory basis

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<sup>34</sup>Paul E. Fertig, Donald F. Istvan, and Homer A. Mottice, Using Accounting Information (New York: Harcourt, Brace & World, Inc., 1965), p. 424.

<sup>35</sup>Myer, Financial Statement Analysis, p. 33.



for the measurement of the financial condition of a business subsequent to the acquisition of such assets.<sup>36</sup>

Ours is a dynamic economy characterized by many changes--changes in the money supply, which, if they differ from the change in real output, produce changes in the general level of prices. In this world of change, financial reports continue to adhere to historical cost valuations which, it has been asserted, have absolutely no current significance to anyone.<sup>37</sup> It would thus appear that financial accounting is locked in by a convention which may have once served a useful purpose, but is now out of date.

Let us now turn our attention to a more in depth look at the historical cost convention, the theoretical basis of its justification, and the accounting concepts which seem to support it. Perhaps then we may be able to effect a reconciliation between some of the precepts of accounting and a departure from the historical cost basis.

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<sup>36</sup> Ibid., p. 32.

<sup>37</sup> Davidson, "Accounting and Financial Reporting in the Seventies,"  
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## CHAPTER III

### THE HISTORICAL COST CONCEPT

#### Theoretical Justification

It is a generally recognized accounting principle that the accounting basis for assets, at the date of their acquisition, is the cost thereof, regardless of other possible values. Thus, cost basis reflects on subsequent balance sheets what management paid in acquiring various assets. Presumably then it permits a judgment to be made regarding the ability of management by the record of its past decisions regarding asset purchases.<sup>1</sup> The balance sheet incorporating historical cost asset valuations thus serves as a summary of controlling accounts for which management is responsible. It has been inferred that to use any other basis would only complicate matters regarding the property control function.<sup>2</sup>

A number of other justifications have been given for using the cost basis. Among these are the fact that cost is the only definite fact available when an asset is purchased thereby making it entirely reasonable to charge the asset account with this amount.<sup>3</sup> Further, accounting assumes that cost is equal to fair market value at the dates of the transactions between

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<sup>1</sup>H. A. Flinney and Herbert E. Miller, Principles of Accounting--Introductory (5th ed.; Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1957), p. 10.

<sup>2</sup>G. Kenneth Nelson, "Current and Historical Costs in Financial Statements," Accounting Review, XLI (January, 1966), 46.

<sup>3</sup>William A. Paton, "The Postulates of Accounting," in Significant Accounting Essays, ed. by Maurice Moonitz and A. C. Littleton (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 76.





entities and that fair market values, determined at arms lengths by opposing interests are objective. The premise follows that the cost basis deals with objective measures of value.<sup>4</sup> Any number of treatises have dealt with historical cost and its theoretical justifications, yet most have resolved to the relative merits of a widely recognized convention whose implementation is objectively determined. One comment advanced in this regard is that "historical costs are not as subject to manipulation as some other valuations would likely be."<sup>5</sup> Another of the factors attributed to being most favorable to the continued use of historical acquisition cost is "the widespread recognition that the reported amounts do not represent value--that they merely reflect unexpired cost." It has been further suggested that representations of value per se in the financial statements might be misleading in that the erroneous assumption could arise that such figures represent what could be obtained upon liquidation.<sup>6</sup> An illustration of the unyielding attitude of those who so tenaciously cling to the concept of historical costs, even in light of an appreciably altered economic environment, is expressed by the following:

Financial statements based on historical costs are part of the discipline of management . . . It is part of their responsibility to the public to show what has been invested in the business and where that investment has gone, regardless of the fact that price levels may have changed radically over the period of time that this capital has been invested.<sup>7</sup>

In essence, this does not deny that the use of historical cost prohibits

<sup>4</sup>Curtis H. Stanley, "Cost-Basis Valuations in Transactions Between Entities," Accounting Review, XXXIX (July, 1964), 640.

<sup>5</sup>Harvard Round Table, Measurement, p. 27.

<sup>6</sup>Ibid., p. 30.

<sup>7</sup>Ibid., p. 27.



showing the financial position of a business in terms of current economic conditions. Rather, it implies that the latter is not important in the province of accounting, that accounting is no more than the recording and reporting of transactions--past events that have actually taken place, conditions that have arisen in the past.<sup>8</sup> Such would seem to raise serious question as to the utility of conventional financial accounting to statement users.

#### Some Deficiencies of the Concept

A great deal of importance has been attached to the fact that historical costs represent an opinion about the value of an asset that was, at one stage, backed up by hard cash, hence implying objectivity of measurement. However, many assets may change hands at prices far too high, or too low, and thus there is not necessarily a genuinely objective valuation in the price at which a property once changed hands. Moreover, the passage of time can remove any significance that the purchase price might once have had.<sup>9</sup> Thus, while value and cost may be assumed synonymous at the transaction date, the measurement cannot be assumed to be absolutely objective. Accordingly, the historical cost basis on which fixed assets are measured does not provide a satisfactory basis for the measurement of the financial condition of a business subsequent to the acquisition of such assets.<sup>10</sup> In the case of such long-lived elements, the passage of time and changes in economic conditions and prices may render cost data unreliable and even misleading for the

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<sup>8</sup> Ibid., p. 31.

<sup>9</sup> Howard Ross, The Elusive Art of Accounting, (New York: The Ronald Press, 1966), p. 55.

<sup>10</sup> Myer, Financial Statement Analysis, p. 32.



purposes accounting is supposed to serve.<sup>11</sup>

In the study of the Taxation and Research Committee of the Association of Certified and Corporate Accountants in England, undesirable effects of historical-cost accounting are associated with financing, managerial decisions and interpretation, among which are:<sup>12</sup>

1. If prices are not set to include sufficient allowance for the cost of replacing resources and facilities, what was considered a normal profit margin will of necessity be required to make replacements.
2. Management falls into bad habits because of the appearance of good profits when prices are rising, and it may tolerate inefficiencies.
3. The best choice of products may be overlooked, for what seems to be a profitable line on a historical-cost basis may not be on a current cost basis.
4. The stockholders' interest is not in a certain amount of money capital but in the yield from a going concern.

It would thus appear that despite its theoretical merits based on objectivity, with which we shall deal in greater depth below, historical cost though easily verifiable and simple to understand does not provide a basis for today's financial statements upon which the user may base rational decisions.<sup>13</sup> In this regard the following has been charged:

To submit a statement of financial position as a list of costs not yet charged to revenues, although consistent within the cost needed is . . . no basis for the formulation of . . . (rational economic) decisions. Of what significance

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<sup>11</sup>W. A. Paton, "Accounting Procedures and Private Enterprises," in Significant Accounting Essays, p. 195.

<sup>12</sup>C. Aubrey Smith and Jim G. Ashburne, Financial and Administrative Accounting, (New York: McGraw-Hill, 1960), p. 285.

<sup>13</sup>Catlett, "Better Objectives," 64.





is an emphasis on increase in "wealth" (income determination) during a period if the figures at the beginning and end of the period themselves do not express wealth at those points of time? While historical cost methods may give some indication to the shareholders of the stewardship of management in the management of costs and money capital under their control, the records give no indication of the real worth of the enterprise as a going concern except to the extent that operating profit is a predictive device. In short, it is a static concept in a dynamic economy with its changing prices.<sup>14</sup>

It would thus seem that the most glaring fault of conventional accounting methods has been a failure to keep pace and adapt to today's economic realism. The impropriety of reporting the costs of resources, incurred over a period of years in terms of dollars of substantially varying value is quite apparent. Cost is an economic question, not merely a monetary number on a piece of paper. Costs represent the economic sacrifice made, the purchasing power utilized in acquiring something. The monetary unit in effect when the acquisition is made is merely the convenient yardstick to employ in recording the cost. But it must be remembered that although the name of the monetary unit has thus far been preserved in the United States, the value of the unit has been substantially eroded in recent decades.<sup>15</sup>

From the foregoing discussion, it would seem that cost, as one of the recorded facts of accountancy and as the basis for determining subsequent "book" values and periodic depreciation, would appear to have certain limitations. When any commodity or service is acquired in the market, cost is the best available evidence of the economic value prevailing at that moment. In other words, cost at the point of acquisition expresses what

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<sup>14</sup>Stephen H. Penman, "What Net Asset Value?--An Extension of a Familiar Debate," Accounting Review, XLV (April, 1970), 338.

<sup>15</sup>Paton, Corporate Profits, p. 40.





the contracting parties consider the goods or services to be worth. In this sense cost expresses initial value, and as such is a datum of very considerable importance. From this reasoning it would be a short step to consider financial accounting in terms of values rather than costs. What seems to be needed at this stage in the evolution of accounting is a new significant definition of cost for fixed assets comparable with the definitions of cost which have been evolved for inventories. Such a definition which would be just as effective in keeping accounting economically and mathematically sound during periods of widely fluctuating prices as well as during periods of relatively stable prices. Hence, cost is a substantive economic measure and expresses the economic power contributed or economic sacrifice incurred. With this conception in view it becomes necessary to restate or convert recorded data when there has been a marked and persistent change in the value of the dollar. Without such restatement or qualification the recorded data no longer represents true cost. That is, so-called "actual cost" paradoxically may not be "actual cost."<sup>16</sup>

#### The Cost Versus Value Controversy

It should immediately be recognized that any progression down the path suggested immediately above will invariably lead to a discussion centering on the "cost vs. value" controversy. Proponents of the former argue on the basis of objectivity and the stewardship function of accounting, while advocates of the latter stress greater utility in a period of fluctuating prices. Before proceeding to examine some value based concepts of representing assets, let us look at the concepts of "cost" and "value"

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<sup>16</sup>Roy A. Foulke, Practical Financial Statement Analysis (6th ed.; New York: McGraw-Hill, 1968), p. 607.



in relation to the postulates objectivity, utility, and economic realism, and see if a reconciliation of the concepts is possible.

In traditional accounting thought, value was and still is a subjective idea which thus cannot exist independently of an opinion, or group of opinions, which change with circumstances. This philosophy holds that when cost figures, representing investment, are altered to represent some "value", not only is the statement altered but the results of the valuation are also projected into the future. Therefore, it is held, a statement which purports to show some "actual" or "real" value assumes a false and impossible validity both for the present and future. One of the necessities of conventional accounting then is that it be objective. Although this limits its scope, when it enters fields which are entirely subjective in their nature, such an extrapolation is tantamount to using an instrument designed primarily for recording observed, objective facts, to measure the effect and extent of changes which are based primarily on emotions and intellectual reactions. Valuation is thus not conceived to be within the sphere of accounting and should be so recognized.<sup>17</sup>

It would seem that such a restricted conception of "value" must derive from the verifiability of an arm's length transaction which thus, it is purported, serves as an objective measure upon which statement figures must necessarily be based. While little issue can be taken with the merits of pure objectivity, the question arises as to how far pure objectivity should be carried, what does it actually measure and are such measures useful to the users of financial statements. Let us proceed to take these issues up one at a time.

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<sup>17</sup>Maurice E. Poloubet, "Is Value an Accounting Concept," in Significant Accounting Essays, ed. by Maurice Moonitz and A. C. Littleton, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), pp. 96-97.





### Objectivity in Perspective

It has been stated that an important reason for the confidence placed in the financial statements of a business is the fact that auditors require verifiable objective evidence to support the accounting transactions that are recorded in the accounting records. Accordingly, the best evidence is that which is most objective, i.e., that which is least influenced by personal opinion and judgment.<sup>18</sup> The Accountant's Handbook states that "the word "objective" by definition means "impersonal"--the giving of facts as they are without a bias toward either side."<sup>19</sup> A Dictionary for Accountants further terms the word objective as: ". . . having a meaning or application apart from the investigator, the peculiarities of his experience, or the environment, and substantiated or capable of being substantiated by the findings of independent investigators."<sup>20</sup>

It has been further suggested that the criterion of objectivity is that another knowledgeable person can independently arrive at the same conclusion based on a reasoned application of his knowledge of the facts at hand.<sup>21</sup> The latter, however, has even been criticized by some professional accountants as interpreting the requirements of objective accounting in too rigorous a manner. A number of conventional accounting measurements, allocations and the like are somewhat arbitrarily based, and one need only consider such matters as joint-cost allocations, alternative depreciation

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<sup>18</sup> Kennedy and McMullen, Financial Statements, p. 29.

<sup>19</sup> Accountants Handbook, ed. by Rufus Wixon (4th ed.; New York: The Ronald Press, 1956).

<sup>20</sup> Eric Kohler, A Dictionary for Accountants (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963), p. 287.

<sup>21</sup> Robert L. Dickens and John O. Blackburn, "Holding Gains," 324.





formulae, and arbitrary provisions for possible future liabilities to realize the extent to which pure objectivity is diluted in consideration of practicality, simplicity or convenience. This is not to suggest that objectivity must necessarily be sacrificed at all, but rather that the objectivity requirement not be interpreted in too rigid a manner. In carrying the argument to its logical conclusion, one might be forced to conclude that strict cash accounting alone satisfies a rigid interpretation of objectivity.<sup>22</sup>

Fortunately the implications of rigid adherence to pure objectivity is now being recognized in some of the contemporary literature of the profession. Howard Ross illustrates the ultimate absurdity of adhering to cash (arm's length) transactions in the pursuit of objectivity.<sup>23</sup>

. . . consider the actual case history of a pair of identical semi-detached residences. One of the residences was last sold in 1943 for \$6,000 and the other in 1963 for \$36,000. This may seem an amazing variation, but it represented the depressed real estate market in the area during World War II and the present boom conditions. In any event, it is the principle that is important and everyone can recognize the common situation in which identical assets sell at different prices at different times.

Consider now the conventional treatment of these residences in their owners' balance sheets in 1963. The owner of the second house would carry it at \$36,000. On the other hand if the owner of the first house uses the popular straight-line rate of depreciation for buildings of 2 1/2 per cent his residence would appear in his balance sheet at \$3,000. If the sale at \$36,000 was a legitimate one, can it possibly be justifiable to carry the first house at \$3,000? Does this value mean anything to someone who is trying to use a balance sheet to find out something about the owner's financial position? If the houses are identical, is not the \$36,000 valuation just as much an appraisal backed by cash as the \$3,000 figure? To drive home the full preposterousness of our conventional treatment, it might be pointed out that

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<sup>22</sup>M. C. Wells and W. D. J. Cotton, "Holding Gains on Fixed Assets," Accounting Review, XL (October, 1965), 832.

<sup>23</sup>Ross, The Elusive Art of Accounting, pp. 81-83.



if both these residences had been purchased by the same owner it would be considered quite proper for him to carry the two identical assets--one at a valuation of \$3,000 and the other at \$36,000 in his balance sheet. Moreover, if he sold the first house subsequently for \$30,000 it would be considered that he should record a \$37,000 capital gain, whereas if he sold the second house at that price he would register a \$6,000 capital loss . . .

Even the most inflexible of accountants would perhaps not carry conventional procedures to their logical conclusion when dealing with a case as extreme as this. In practice some way can usually be found to soften such absurdities as permitting the owner of two identical fixed assets to carry one of them at twelve times the value of the other. But this is not the point. It is all very well to devise some means of adjustment (through appraisal, write-down averaging-up, or something of the sort) when one comes face to face with a transparently grotesque situation. The significant conclusion is that even if one owner does not have two identical assets purchased at such different prices--even indeed if two identical assets do exist--it would still be ridiculous for anyone to carry the first house in his balance sheet in 1963 at \$3,000. If there were no current sale of an identical house to go by surely some more intelligent value than \$3,000 could be established. What does it matter if one appraiser valued the house at \$30,000 and another at \$40,000 (a spread that might be considered improbably wide in practice)? Either of these figures is nearer the mark than \$3,000.

In the foregoing case the problem is indeed simplified by the current sale of an identical property. Often, perhaps normally, things will not work out that conveniently. However, if there is not an identical house, there are usually reasonably similar houses. If there is not a recent sale, there is at least a reasonably demonstrable market. Whatever the problems are, it must be rarely that a twenty-year-old transaction provides the best basis available for valuation.

The most important general criticism of financial statements, as we now produce them, is not that they are inaccurate, nor that there is anything illogical about the generally accepted principles on which they are based; the most general criticism is simply that the financial statements are not sufficiently informative.

We have gone too far in our devotion to objectivity. If better statements are to be produced, they can be produced only by improving the quality of judgment that goes into their preparation--not by resisting so fanatically the extension of the judgmental element. The essential task of the accounting profession is to encourage the use of the most impartial and best informed opinions that can be brought to bear.

To sum up, the trouble with overrating objectivity is that it tends to make us satisfied with a valuation that can





be documented and thus defended, rather than encouraging us to develop more realistic and useful valuation procedures.

Other contemporary writers in the field have not been quite so poignant in their criticism of conventional accounting's tenacious adherence to a rigid criterion of objectivity. Rather they have recognized the fact that judgment has and always will play a large role in the work of the accountant and in many instances the criteria of objectivity must be tempered in relation to both judgment and utility. Different connotations of objectivity have been used extensively for some time in the professional literature. When used without a qualifying adjective, their precise meaning is difficult to determine. While objectivity is often used as a "buzz" word to support theoretical arguments, what it is intended to convey is not always clear. As a result it means different things to different people. This situation inhibits accounting communication and progress toward solutions of accounting theory problems.<sup>24</sup>

Because the accounting process does not exist independently of mankind, it is not objective in any metaphysical sense of that term. At the operational level of the accounting process certain elements can be applied and some activities can be performed independently of the judgmental thought processes of individual accountants. Only these elements and activities are operationally objective. Since the remaining elements and activities are not operationally objective, the need for judgment should be publicly stressed rather than modifying the objectivity concept to make it operationally useful. Given the nature of objectivity and the complicated nature of the accounting process, some individual judgment is desirable and will

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<sup>24</sup>Joseph F. Wojdak, "Levels of Objectivity in the Accounting Process," Accounting Review, XLV (January, 1970), 96.





always be required. At the operational level the accounting process is dynamic. Accordingly, the application of the operational concept of objectivity must be ever changing in response to the dynamic elements of the accounting process.<sup>25</sup>

Paton and Littleton take a different tack in departing from the concept of rigid objectivity when they say:

Objective facts need not be conclusively objective to be dependable; if they are convincingly objective, they are convincingly dependable. They may be subject to later correction as subsequent and better evidence becomes available. Objectivity determined facts of one period may be offset, and in effect canceled, by subsequent objectivity determined facts. But the facts first determined, if their determination was convincingly objective, are none the less dependable facts as of that moment. They afford a better basis for action than unobjective facts, that is, subjective opinion.<sup>26</sup>

This statement appears to indicate a relaxation of insistence on arm's length transactions as the criterion for objectivity while also implying that the (cost) basis of valuation might be subject to revision over time.

All of the foregoing commentary concerning objectivity, while buffering rigid connotations of the term, still do not actually get at the heart of what renders pure objectivity often unworkable in today's economic climate--the lack of relevance of purely objective information. In many cases valuations based on arm's-length transaction measurements may indeed be entirely useful. For purposes of this paper, however, it is submitted that such are not useful in measuring profitability under a climate of steadily increasing price levels, for the concept of economic realism is

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<sup>25</sup> Ibid., p. 97.

<sup>26</sup> Paton and Littleton, Corporate Accounting Standards, p. 19, cited in Harold E. Arnett, "What Does "Objectivity" Mean to Accountants," Journal of Accountancy (May, 1961), 67.



completely ignored therein. Accounting purports to be a measurement science and it is a priori that any system of measurement exists by virtue of its utility. Presumably the more objective the system of measurement, the more useful it will be. It should be noted, however, that objectivity per se should not be the sole criterion for selecting accounting measurement systems. On the other hand, it is nearsighted to say that objectivity should be discarded altogether in favor of a vague and poorly defined notion of "usefulness."<sup>27</sup> Thus, the criterion of objectivity is relative, rather than absolute, and the exchange of some degree of objectivity in return for greater usefulness is clearly desirable.<sup>28</sup> Usefulness, however, is an abstract concept and can be applied meaningfully as a criterion only when responsive to such questions as "useful to whom?" and "useful for what purpose?" Information that is useful to management in making its decisions is not necessarily useful to stockholders in arriving at their investment decisions. However, the former have information available from the realm of managerial accounting, whereas financial accounting provides the information for financial statements. Audited financial statements are intended to provide reliable information to appropriately interested parties and there is considerable precedent for identifying the primary users as the investor group.<sup>29</sup> It has been suggested that the reliability of a measurement often can be improved by either sacrificing some objectivity or by changing the measurement system. Clearly any divergence from the historical cost convention might be construed as doing both. However, for our purposes

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<sup>27</sup>Yuji Ijiri and Robert K. Jaedicke, "Reliability and Objectivity of Accounting Measurements," Accounting Review, XLI (July, 1966), 483.

<sup>28</sup>Harvard Round Table, Measurement, p. 19.

<sup>29</sup>Ibid., pp. 20-1.



the degree of reliability is recognized as the important criterion and it will ultimately determine the extent to which the decision making public will accept and use accounting measurements.<sup>30</sup>

Throughout contemporary accounting literature the argument of objectivity versus relevance wages on. The advocates of conventional accounting do not deny that a departure from historical cost might have greater relevance under current economic conditions, but rather insist that such is not the function of accounting. They argue that any digression from the recording of the amounts as stated in the course of the original arm's length transactions hastens a greater loss of objectivity, and thus violates one of the basic postulates of accounting. What appears to be the point of departure of the two sides to the controversy is what accounting is intended to portray or measure. Clearly the different objectives cannot be attained by using the same method of measurement. One contemporary writer has stated, "It is important for the accountant to recognize that different descriptions or measurements may be used for different purposes."<sup>31</sup> Others will not acquiesce to such a reconciliation of the basic problem and contend that insofar as the objective of measurement is to provide an interpretable indication of the magnitude of a property under specific conditions (as of a stated date, in accounting), the scale employed throughout the measuring is necessarily a scale relevant under those conditions. In brief, no analysis of conventional accounting statements can yield sensible conclusions insofar as those statements employ scales for different items which vary materially in significance, or in the

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<sup>30</sup> Ijiri and Jaedicke, "Reliability and Objectivity," 483.

<sup>31</sup> Harold Bierman, Jr., "Management and Accounting," Accounting Review, XXXIX (July, 1963), 501.







interpretation which may be placed upon them singly. To overcome this deficit units of differing significance must be transformed into units having the same significance.<sup>32</sup>

Perhaps what we have are actually two separate lines of resistance to a departure from historical cost--one school opposing such a move on the grounds of losing objectivity, while the other presupposes that the economic conditions under which historical cost was originally measured are still sufficiently relevant and do not warrant a digression from conventional accounting methods. In regard to the latter, a price rise of 3 per cent per year may not seem significant, but over a 20 year period, as might well be the case with some long lived fixed assets, it would seem a reasonable conclusion that economic conditions have been significantly altered and the historical cost figures are no longer relevant. Yet, any attempts at a valuation basis of fixed assets is often met with strong resistance as "unsound" accounting practice. There may however, be some hope for a reformation of sorts. G. Edward Phillips speaks of an "accounting theory revolution" with an increased emphasis on valuation as a means of rectifying some of present-day accounting's apparent ills:

Most of the troubles accountants have in developing a means of judging soundness of accounting practices are caused by an inevitable conflict in the need for figures which are both realistic and objectively measurable. This conflict might be expressed as value versus cost, subjectivity versus objectivity, or economic versus accounting income concepts.

The "accounting theory revolution" is primarily an attempt to get accounting theorists to concentrate on achieving the optimum measure of values, rather than emphasizing costs. Those who promote this revolution are accused of introducing a dangerously high degree of subjectivity into accounting. But the theory revolution does not necessarily imply more subjectivity. It merely insists that the proper goal of

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<sup>32</sup> R. T. Chambers, "Measurement and Objectivity in Accounting," Accounting Review, XXXIX (April, 1964), 267.



accounting is to measure exchange values as closely as possible while maintaining reasonable verifiability in the figures. It recognizes the need for objectivity, but insists that this need is a limitation on our ability to achieve the ideal in measuring values; it is not a basis for theory.<sup>33</sup>

The supporters of this revolution in accounting theory are sometimes considered to favor an "economic" rather than an "accounting" concept of income. The conflict and the controversy surrounding it is not inherently conceptual or theoretical, it is rather judgmental or practical.<sup>34</sup> The heart of the revolution is an emphasis on valuation in measuring financial position and income. In much accounting literature there has been relatively little discussion of valuation, but rather an implicit emphasis on balance sheet figures as cost residuals and on income as being a result of matching historical costs (often determined through allocation processes) with related revenues.

The revolution in theory does not necessarily imply a drastic revolution in accounting practice. Rather, valuation theory tells us that we should measure the amount of an asset by using the best possible estimate of its value. The best possible estimate is the most accurate amount that can be determined with reasonable objectivity, and with reasonable expense of obtaining the figure. To the extent that the figures accountants now use meet these requirements, there is no need for changes in accounting practice.<sup>35</sup>

Having received some quarter from the notion that pure objectivity

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<sup>33</sup>G. Edward Philips, "The Revolution in Accounting Theory," Accounting Review, XXXVIII (October, 1963), 697.

<sup>34</sup>Ibid., 698.

<sup>35</sup>Ibid., 699.



need not be a necessary criterion for accounting measurement, and being somewhat encouraged by the revelation that at least some sphere of the accounting profession is ready to accept a departure from historical cost, let us then proceed to examine some of the valuation bases discussed in contemporary literature. After considering aspects of feasibility, relative objectivity, and particularly relevance, hopefully one of the bases will emerge as being more useful in today's economic climate, while providing some means of reconciliation to the rigid adherents of conventional accounting.





## CHAPTER IV

### SOME ALTERNATIVE BASES OF VALUING FIXED ASSETS

Accounting based on historical cost was developed and has been perpetuated on the assumption that changes in the price level could be ignored--this has been one of accounting's postulates. As we have already seen, this assumption is not very realistic, particularly in view of price level experience over the past twenty-five years.<sup>1</sup> One of the basic issues before us then is to attempt to develop meaningful concepts of capital and income in light of this economic phenomena.<sup>2</sup> A number of accountants have studied the problem of the erosion of fixed dollar capital resulting from rising prices and have argued for change. Maurice Peloubet, the eminent accountant, has been most vigorous in his criticism of traditional practices.<sup>3</sup>

The persistent use of an accounting method that continuously overstates earnings is one of the most subtle and effective weapons with which to destroy private capitalism . . . Our choice is not between accuracy and inaccuracy but rather between formally accurate but basically wrong accounts and other accounts that, while admittedly approximate in some respects, are a closer approach to the facts.

To recapitulate from the previous chapter, the past reliance on cost for the initial valuation of assets has rested on two grounds: (1) experience indicates cost is generally reflective of value at the transaction

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<sup>1</sup>Oscar S. Gellein, "Price-Level Accounting," Haskins & Sells Selected Papers - 1963 (n.p.: Haskins & Sells, 1964), p. 102.

<sup>2</sup>Ibid., p. 112.

<sup>3</sup>Maurice E. Peloubet, "An Indictment of the Accounting Profession for Failing to Deal with Effects of Inflation," Journal of Accountancy (December, 1953), 714; cited by C. Aubrey Smith and Jim G. Ashburne, Financial and Administrative Accounting (New York: McGraw-Hill, 1960), p. 284.



date, and (2) cost is objectively determined and subject to verification. However, over time, cost often loses its close correspondence to value and thereby becomes less significant. One of the propositions to thus be considered is--the closer the valuation of assets to current values and to current costs determined in an objective and reliable manner, the more useful and significant is the information presented.<sup>4</sup>

### Inherent Connotations of Valuation

As has been seen, the potential encroachment of any connotations of "value" has been sternly resisted by a large sector of the accounting profession. "Value" has been defined as:

A fair return in money, goods, services, etc., for something exchanged; monetary worth of a thing; marketable price; the quality or fact of being excellent, useful or desirable; worth in a thing; estimated or assessed worth.

It has been often and widely declared that the accounting process is one of allocation, not valuation. But does this mean that the accounting expression of financial condition should be limited to a cost which was made evident in the past? Rather, might not the foregoing definitions suggest that worth is a matter of current concern and that current worth "at a given date" should be the objective of a statement of financial condition?<sup>5</sup> It would seem that the term "asset" when used in relation to "financial position" has a connotation of value which cannot be ignored.<sup>6</sup>

Much of the discussion surrounding departure from historical cost has been concerned with effects on net income, with the position taken that

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<sup>4</sup>Catlett, "Better Objectives," 63.

<sup>5</sup>Knortz, "Economic Realism," 22.

<sup>6</sup>Catlett, "Better Objectives," 63.



a relaxation of historical cost would result in reported profits that were more realistic and less misleading.<sup>7</sup> Indeed it has been recognized by many that in recent years the balance sheet has been considered a second-class statement. Accordingly, little attention has been given in recent accounting doctrine to the effect on the validity of the balance sheet and its utility as a financial tool.<sup>8</sup> Valuation of assets is related to the recognition of income to be sure, and in the next chapter we will look at depreciation charges as a determinant of net income, which is in turn one of the components of a measure of profitability. That is to say that while the two have aspects which should be considered separately, they are both components of the same problem and relate to one overall objective.<sup>9</sup>

The use of assets as an investment base necessitates policies and decisions on asset valuation. Accordingly we have chosen consideration of valuation bases as the first component in our pursuit of a more valid measure of profitability. Property, plant, and equipment can be valued on any one of several different bases for measuring return on capital.<sup>10</sup>

Although many accountants have recognized the deficiencies of historical cost and have argued for adjustments to financial statements in order to take account of the change in prices during a particular period, there has been considerable disagreement as to the correct basis of adjustment. Basically there are three schools of thought on the subject. There

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<sup>7</sup>Smith and Ashburne, Financial and Administrative Accounting, p. 285.

<sup>8</sup>Knortz, "Economic Realism," 22.

<sup>9</sup>Catlett, "Better Objectives," 63.

<sup>10</sup>Robert Beyer, Profitability Accounting for Planning and Control (New York: Ronald Press, 1963), p. 223.





are those who argue that adjustments should be made to the financial statements for:

1. Changes in prices of specific items.
2. Changes in the general purchasing power of money.
3. Changes in both specific prices and in general purchasing power of money.

Specific price changes refer to the movement in the prices of specific assets, such as fixed assets. These may be contrasted with a change in the general price level which reflects changes in the purchasing power of money over all goods and services. The difference between the two types of price change may be illustrated by the following example: Assume that an asset is purchased for \$100 at the beginning of a year and that by the end of the year the general price level has increased by 10 per cent. The acquisition cost in terms of year-end dollars is \$110, a figure which does not represent, except by coincidence, the asset's replacement cost at the end of the year. For example, the supplier's price list for the asset may be \$115 at the end of the year. It is this replacement cost or some other indicator of the current cost of the asset that many accountants advocate should be used to adjust the financial statements.<sup>11</sup> By contrast, an adjusted cost of \$110 is merely an adjustment for the general price level and is related to the "purchasing power" concept. It is this method of adjustment which we shall first consider.

#### General Price Level Adjustments

Most recent studies and articles on the subject have stated or

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<sup>11</sup>Graham Peirson, "Three Kinds of Adjustments for Price Changes," Accounting Review, XLI (October, 1966), 729-30.



assumed that the purchasing power concept relates to the general value of the dollar measured by changes in prices in general. AICPA Accounting Research Study No. 6 connotes "price-level change" as meaning the change in the general purchasing power of the dollar. The concept of purchasing power attains its validity from the accounting objective of distinguishing between invested capital and income. Income results only if a person or firm is better off at the end of a period than he or it was at the beginning of that period. Capital must be maintained in terms of its purchasing power for a firm to be as well off at the end of the period as it was at the beginning.<sup>12</sup>

The propagation of the general-adjustment concept can be traced in (1) the 1951 American Accounting Association Committee on Concepts and Standards Underlying Corporate Financial Statements, (2) Jones and Mason, sponsored by the American Accounting Association, and (3) the Accounting Research Division of the American Institute of Certified Public Accountants.

The 1951 AAA committee recommended that:

The effects of price fluctuations upon financial reports should be measured in terms of the over-all purchasing power of the dollar--that is, changes in the general price level as measured by a general price index . . . The measurement of price level changes should be all-inclusive; all statement items affected should be adjusted in a consistent manner.<sup>13</sup>

Jones in 1956, observed the rate of return on invested capital can be quite misleading if it is computed in non-uniform historical dollars when the value of the dollar itself

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<sup>12</sup> Eldon S. Hendriksen, "Purchasing Power and Replacement Cost Concepts--Are They Related?" Accounting Review, XXXVIII (July, 1963), 484.

<sup>13</sup> Supplementary Statement No. 2, "Price Level Changes and Financial Statements," in Accounting and Reporting Standards for Corporate Financial Statements and Proceeding Statements and Supplements (American Accounting Association, 1957), p. 26, cited in William H. Hannum and W. Wasserman, "General Adjustments and Price Level Measurement," Accounting Review, XLIII (April, 1968), 296.



is changing at a significant rate. When the general level of prices is rising, that is, when the value of the dollar is falling, revenues are made up entirely of small current dollars while both expenses and invested capital are stated at least in part in older and larger dollars.<sup>14</sup>

Jones reasoned that since the "unique characteristic of money is general purchasing power, "values in financial statements should be adjusted for comparative purposes into "uniform dollars" that all represent the same general purchasing power."<sup>15</sup>

Mason posed the same objective. He suggested that "the objective of general price level adjustments is to determine whether or not the purchasing power of the aggregate capital has been maintained . . . ."<sup>16</sup>

In Accounting Research Study No. 6 (henceforth referred to as ARS 6), it is observed that when the value of the dollar is unstable, the "figure conventionally shown as net income . . . cannot at all measure the gain or loss resulting from the units of purchasing power received as revenues and the units of purchasing power consumed in obtaining such revenues." Therefore the purpose of price-level adjustments, which might more accurately be characterized as corrections for changes in the price level, is to express or restate each item on the financial statements in terms of a dollar of the same general purchasing power. Such figures can logically be compared, and more meaningful conclusions can be drawn than from the original unadjusted cost figures.<sup>17</sup>

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<sup>14</sup>Ralph C. Jones, Effects of Price Level Changes in Business Income, Capital, and Taxes (American Accounting Association, 1956), pp. 1-2, cited in Hannum and Wasserman, "General Adjustments," 296.

<sup>15</sup>Hannum and Wasserman, "General Adjustments," 296.

<sup>16</sup>Perry Mason, Price-Level Changes and Financial Statements (American Accounting Association, 1956), p. 13, cited in Hannum and Wasserman, "General Adjustments," 296.

<sup>17</sup>AICPA, ARS 6, pp. 74-75.





The merits of using various indices for price-level adjustments has been widely treated in recent years. In concept, when used on a fixed asset the mechanical process is one of multiplying the historical cost of the asset by the ratio of the index for the current year to the index for the year of acquisition.

The arguments opposing the application of index numbers have been concerned with the absence of index numbers suitable for all situations, the introduction of an additional non-objective measure in accounting determinations, the lack of public understanding of the nature of index numbers, and the like.<sup>18</sup>

There are three so-called "general" indexes regularly maintained in the United States--the Wholesale Price Index, the Consumer Price Index, and the (Gross National Product) Implicit Price Deflator. All three indexes have been proposed for use by one or another individual or research group in the general-adjustment field.<sup>19</sup> In ARS 6 the Implicit Price Deflator is favored.

It is sometimes stated that the general indexes all move in a common pattern, and accordingly it does not matter which index is used. Nevertheless, a year-by-year comparison will reveal significant divergencies on occasion between the above mentioned indexes, even to the point where they move in different directions, as during some periods of the war in Korea. The degree of divergence among these indexes in the future cannot be predicted. For experimental studies in which the thrust of the research is toward the development of the accounting methodology to implement general price-level adjustments, any of the above mentioned indexes would be adequate

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<sup>18</sup>Oscar S. Gellein, "Price-Level Accounting," p. 109.

<sup>19</sup>Hannum and Wasserman, "General Adjustments," 296.



for purposes of exposition and demonstration. However, the making of adjustments has been carried beyond experimentation to the point where common-dollar reporting is proposed for adoption on a standard basis, and the proposals are being carefully considered. As currently envisaged, such reporting would entail the adoption of one general index by the accounting profession. The ultimate justification for selecting a general index in preference to others must be found in the greater appropriateness, for common-dollar reporting, of the goods and services covered by that index. Thus the choice of index now becomes an accounting issue in clarifying the conceptual underpinning of the general adjustment idea.<sup>20</sup>

Perhaps more basic is the question of whether price-level adjustments should be geared to the general price level or to the price level of the specific commodities or industries for which the adjustments are being made.<sup>21</sup> Consequent to post-World War II inflation, France revalued fixed assets by means of index corrections computed on the basis of the wholesale price indices for construction materials, lumber and steel products. The indices of these commodity groups were chosen because they constitute the principal cost elements of most fixed assets. This method thus attempted to eliminate only inflationary price level effects of the selected commodities reflected in the revaluation coefficients.<sup>22</sup>

The view emerging appears to be that price level adjustments should be related to the general price level. It would appear that a final answer must be found in a more careful definition of capital and income. Is it

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<sup>20</sup> Ibid., 297.

<sup>21</sup> Oscar S. Gellein, "Price-Level Accounting," p. 110.

<sup>22</sup> H. Peter Holzer and Hanns-Martin Schonfeld, "The French Approach to the Post-War Price Level Problem," Accounting Review, XXXVIII (April, 1963), 387.



more meaningful, for example, to express income in dollars based on prices in markets where the specific business (or possibly the industry) spends its money, or in dollars where its stockholders will spend the money they get from dividends? Or should the emphasis be placed on the prices to be paid in replacing assets used up in operations? It would seem that the answer must be resolved in terms of ascertaining the most meaningful measure of capital.<sup>23</sup>

The most recent authoritative pronouncements concerning price-level adjustments have come from the "statement of the accounting principle's board No. 3: Financial Statements Restated for General Price Level Changes," pertinent excerpts of which are given herewith.<sup>24</sup>

The basic difference between general price-level and historical dollar financial statements is the unit of measure used in the statements. In general price level statements the unit of measure is defined in terms of a single specified amount of purchasing power--the general purchasing power at a specified date. Thus, dollars which represent the same amount of general purchasing power are used in general price level statements whereas dollars which represent diverse amounts of general purchasing power are used in historical dollar statements. The same accounting principles used in preparing historical-dollar financial statements should be used in preparing general price-level financial statements except that changes in the general purchasing power of the dollar are recognized in general price-level financial statements. General price-level financial statements are an extension of and not a departure from the "historical cost" basis of accounting. Many amounts in general price-level statements, however, are different from amounts in the historical-dollar statements because of the effects of changing the unit of measure.

The cost principle on which historical-dollar statements are based is also the basis of general price-level statements. In general, amounts shown at historical cost in historical-

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<sup>23</sup>Oscar S. Gellein, "Price-Level Accounting," p. 110.

<sup>24</sup>American Institute of Certified Public Accountants, "Statement of the Accounting Principles Board No. 3. Financial Statements Restated for General Price-Level Changes," Journal of Accountancy (September, 1969), 62-68.





dollar statements are shown at historical cost restated for changes in the general purchasing power of the dollar in general price-level statements. The amount may be restated, but it still represents cost and not a current value. The process of restating historical costs in terms of a specified amount of general purchasing power does not introduce any factors other than general price-level changes. The amounts shown in general price-level financial statements are not intended to represent appraisal values, replacement costs, or any other measure of current value.

General price-level financial statements should be presented in terms of the general purchasing power of the dollar at the latest balance sheet date. The Board has selected current general purchasing power as the basis for presentation because it believes that financial statements in "current dollars" are more relevant and more easily understood than those employing the general purchasing power of any other period. Current economic actions must take place in terms of current dollars, and restating items in current dollars expresses them in the context of current action.

Large changes in the general price level obviously have a greater effect than small changes. It is perhaps less obvious that moderate changes in the general price level may also significantly affect business enterprises and their financial statements. The nature of the income statement and the cumulative effect over time of moderate changes in the general price level tend to magnify the effects of changes in the general price level. Thus, in the income statement, differences which represent relatively small percentage changes in comparatively large revenue and expense items may be substantial in relation to net income. Also, if assets are held for a number of years, the effect of inflation or deflation depends on the cumulative inflation or deflation since acquisition of the assets. The general price-level change in any one year is only a part of the total effect. Thus, the 3.8% inflation experienced in 1968 is only a small part of the total inflation effect on fixed assets appearing in 1968 statements. For fixed assets purchased in 1950, for example, there is a cumulative inflation effect of 54% (total inflation measured by the GNP deflator from 1950 to 1968) on undepreciated cost and depreciation expense in 1968 general price-level financial statements. Furthermore, the effects of inflation compound over a period of years (for example, a constant 2% rate of inflation results in a 22% cumulative general price-level change in ten years and a 49% cumulative general price-level change in 20 years). Nonrecognition of the effects of inflation may therefore have a substantial effect on financial statement representations of assets held over long periods (such as investments, and property, plant, and equipment), even though the



amount of inflation each year has been relatively small.

Changes in the general price level are measured by the use of index numbers. The most comprehensive indicator of the general price level in the United States is the gross national product implicit price deflator (GNP deflator), issued quarterly by the Office of Business Economics of the Department of Commerce. The consumer price index which is issued monthly by the Bureau of Labor Statistics of the Department of Labor is less inclusive than the GNP deflator. Because of differences in coverage and in the system of weights used, the two indexes may change at different rates in the short run. Over the long run, however, the two indexes have changed at approximately the same rate.

An index of the general price level, not an index of the price of a specific type of goods or services, should be used to prepare general price-level financial statements. Price indexes vary widely in their scope; some measure changes in the prices of a relatively limited group of goods and services, such as construction costs or retail food prices in a specific city, while others measure changes in the prices of a broad group of goods and services in a whole economy. The purpose of the general price-level restatement procedures is to restate historical-dollar financial statements for changes in the general purchasing power of the dollar, and this purpose can only be accomplished by using a general price-level index.

Published general price-level indexes in the United States are stated in terms of a base year (currently 1958 for the GNP deflator). Index numbers for current periods are expressed as percentages of the base year general price level. Through the use of indexes, amounts stated in terms of dollars at any point in time can be restated in terms of dollars of the base year of the index, dollars of the current year, or dollars of any year that is chosen. For example, the cost of land purchased for \$10,000 in 1964 (GNP deflator index = 108.9) can be restated as 9,183 dollars of 1958 general purchasing power (index = 100.0) by multiplying the cost by  $100.0/108.9$ , or as 11,185 dollars of 1968 general purchasing power (index = 121.8) by multiplying the cost by  $121.8/108.9$ . In all three cases the cost is the same but the units in which it is expressed are different. Similarly, the general level of prices in 1968 may be stated as 121.8% of the general level of prices in 1958, or the general level of prices in 1958 may be stated as  $\frac{100}{121.8} = 82.1\%$  of the general level of prices in 1968.

The GNP deflator is the most comprehensive indicator of the general price level in the United States. Consequently, it should normally be used to prepare general





price-level statements in U. S. dollars.

Changes in the general purchasing power of money have an impact on almost every aspect of economic affairs, including such diverse matters as investment, wage negotiation, pricing policy, international trade, and government fiscal policy. The effects of changes in the general purchasing power of money on economic data expressed in monetary terms are widely recognized, and economic data for the economy as a whole are commonly restated to eliminate these effects. General price-level financial statements should prove useful to investors, creditors, management, employees, government officials, and others who are concerned with the economic affairs of business enterprises.

The board believes that general price-level financial statements or pertinent information extracted from them present useful information not available from basic historical-dollar financial statements. General price-level information may be presented in addition to the basic historical-dollar financial statements, but general price-level financial statements should not be presented as the basic statements. The Board believes that general price-level information is not required at this time for fair presentation of financial position and results of operations in conformity with generally accepted accounting principles in the United States.<sup>25</sup>

It would seem that a certain amount of irony is discernible in the excerpt immediately above particularly in juxtaposition to those preceding, and the otherwise apparent recognition by the accounting profession of the limitations of historical cost statements. Perhaps such is merely a manifestation of the tenacity with which the profession must inherently cling to the conventional practices.

#### An application of general index numbers

In view of the stated purpose of this paper, let us briefly regress to one of the excerpts above and recapitulate the mechanics of this form of adjustment to historical cost as applied to fixed assets.

This illustration will include a two-year period, beginning with the opening of business. The following price-level index numbers are assumed

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<sup>25</sup>underlining mine





for use in the demonstration:<sup>26</sup>

Opening of business 150	Second year-average 190
First year-average 160	Second year-end 200
First year-end 175	

Acquisitions of plant and equipment take place at the opening of business and at the close of the first year.

#### Comparative Balance Sheet (Plant & Equipment)

	<u>Opening of business</u>	<u>End of first year</u>	<u>End of second year</u>
Historical cost	200,000	400,000	400,000
Adjusted cost	300,000	450,000	514,286

Restatement procedure--end of second year--

Plant and equipment, acquired at beginning of first year

$$\$300,000 \times \frac{200}{150} = \$400,000$$

Plant and equipment, acquired at end of first year

$$\$100,000 \times 200/175 = \underline{\underline{114,286}}$$

Total adjusted cost of plant and equipment  
end of second year

\$514,286

The concept of general price-level adjustments is not to be confused with proposals to adjust historical cost records by the application of specific price indices in order to approximate current replacement cost. As explained by the American Accounting Association Committee on Concepts and Standards Underlying Corporate Financial Statements:

. . . the adjustment of historical dollar costs--the restatement of these costs in current dollars of equivalent purchasing power as measured by a general price index--is independent of estimated replacement costs or replacement

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<sup>26</sup> ARS 6, pp. 121-30.



policy. It differs from the conventional original dollar cost concept only in that it recognizes changes in the value of the dollar and reflects these changes in the amortization of costs and in the determination of periodic income. Its application is independent of possible or probable future price changes either upward or downward, since only past changes in the value of the dollar are reflected in the adjusted figures.<sup>27</sup>

In addition to satisfying a principle of measurement and mathematics--comparative measurements and mathematical operations must be performed in terms of a common denominator--price-level adjustments are intended to produce a more meaningful income figure, as we shall see in the next chapter.<sup>28</sup>

The adjustment for general price level changes is intended to take into account changes in the dollar as a measuring unit only; it does not take into account changes in the "prices" of individual assets themselves. Whether the prices of individual assets change in a magnitude different from the general price level or, indeed, change in a direction different from the general price level is not relevant. Adjustments for general price level changes may be designed to adhere to the notion of "invested cost," but measured in terms of constant purchasing power. Or, such adjustment may be looked upon as one of the steps in accounting for changes both in the general price level and in the prices of specific assets.<sup>29</sup>

#### Opposition to general price-level adjustments

Despite the apparent merits of general price-level adjustments there

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<sup>27</sup> American Accounting Association, Committee on Concepts and Standards Underlying Corporate Financial Statements, "Price Level Changes and Financial Statements," Supplementary Statement No. 2, Accounting Review (October, 1951), 471, cited in Harvard Round Table, Measurement, p. 74.

<sup>28</sup> Harvard Round Table, Measurement, p. 75.

<sup>29</sup> Ibid., p. 76.



has been considerable resistance to their widespread adoption. Sidney Davidson has summarized the basis for the negative reaction to price-level adjustments as follows:<sup>30</sup>

Enthusiasm for APB Statement No. 3 has been noticeably restrained within the business and accounting communities and among financial analysts and government agencies. Opposition, other than from government, has come from two distinct camps: those who think the proposal is too complicated and those who fear it will do too little and might preclude more effective action.

Those in the "too complex" camp agree that the method results in traditional statements in traditional form based entirely on historical-cost transactions and a widely accepted price-level index. They agree that the method is completely objective and that the data are relatively easy to audit. They argue, however, that the number of adjustments to be made is very large, and that a massive educational effort would be required before the results were generally understood.

The "too little" objectors argue that what is needed is a current valuation for the specific assets of the individual company. Adjusting historical costs for movements in the general price level, they argue, will not approximate current values in a climate of changing tastes and differing rates of technological change among industries. Applying economy-wide averages of any sort to the data of an individual company is not likely to produce meaningful reports for that company; if the company departs sufficiently from the average, the results may be misleading.

Other criticisms have been more specifically levelled at the concept of price adjustments. One such argument opposing adoption of price-level adjustments is that technological change affects capital erosion or accretion as much if not more than price level changes. It has been said, for example, that technological improvement in machinery, equipment and tools and the like in some industries has more than offset the adverse effect of inflation. The argument continues that the present-day cheaper dollar will buy as much or more productivity than the expensive dollars of

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<sup>30</sup> Davidson, "Accounting and Financial Reporting in the Seventies,"





the time when fixed assets were acquired. To determine, therefore, whether a business was as well off at the end of a period as at the beginning, the argument continues, technological advance needs to be considered.<sup>31</sup>

Perhaps there is a counter-argument in claiming that there is no basis for assuming that the effects of technology and price-level changes are offsetting and that there are considerable variations among businesses and industries. There is further rebuttal that they are independent matters which can, and should, be studied separately.<sup>32</sup>

Another criticism of price-level adjustments deals with the relation of a general measure of purchasing power in regard to the level of economic wealth implicit in individual investor expenditure patterns. This argument postulates that the general price level question is concerned with changes in the consumption value of the dollar. Accordingly the question looks beyond the investment use of money to purchase real economic items that provide consumption utility. Application of general price-level adjustments results in balances in all accounts which would be value quantities of a common-sized real value unit of account. This real value unit of account would be the general consumption value purchasable with one dollar today. Insofar as owners/investors do eventually use money as a conduit to real value consumption, they should be very concerned with changes in the value of the dollar. However, they are consumers in their individual capacities. Moreover, as constituent members, or prospective constituent members, of the business enterprise, they are investors and not consumers. The financial statements of the firm report on the investment history of the firm, and in most cases this is not the aggregate investment history of the individual

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<sup>31</sup>Oscar S. Gellein, "Price-Level Accounting," p. 111.

<sup>32</sup>Ibid.



owner/investors in the firm. The argument thus concludes that general price-level adjustments should be made to the specific investment histories of the individual investors in the firm on the basis of their particular expenditure budgets, something which cannot realistically be done within the financial statements of the firm unless there is a very high degree of homogeneity among the individual shareholders both as investors and consumers.<sup>33</sup>

The foregoing criticisms appear to have some validity on theoretical grounds, yet do not specifically deny that general price-level adjustments provide greater utility than does the historical cost basis. Before proceeding with a test of profitability measurement based on general price-level adjustments, let us examine the concept of specific adjustments, looking briefly at a few of the more widely advocated specific procedures.

#### The Economic Value Basis

One of the most theoretically well-founded methods of valuing fixed assets is the Economic Value basis. According to this concept, the economic value of an asset is the present value of all future returns (cash receipts) which are attributable to its possession and/or use, determined at an appropriate rate of discount and measured in a constant monetary unit. A business enterprise engages in a continuous process of acquiring factors and converting them to cash. The essence of the value of an asset, therefore, is the present value of the future cash receipts (or their equivalent) into which that asset will be converted.<sup>34</sup>

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<sup>33</sup> John A. Tracy, "A Dissent to the General Price-Level Adjustment Proposal," Accounting Review, XL (January, 1965), 175.

<sup>34</sup> Harvard Round Table, Measurement, p. 77.



Sprouse and Moonitz defined assets in Accounting Research Study No. 3 as "expected future economic benefits, rights to which have been acquired by the enterprise as a result of some current or past transaction."<sup>35</sup> It follows then that the "value of a fixed asset is the money equivalent of its service potentials."<sup>36</sup> This is conceptually the amount of future net cash flows generated by the asset discounted to their present value by interest and probability factors--commonly referred to as Net Present Value. Thus, asset values are expressed as the capitalized earning power they possess, that is, in terms of discounted fund flows.<sup>37</sup>

It is the opinion of one contemporary accountant that this and only this concept of valuing assets meets the requirements of relevance for decision making. Accordingly, only by reference to the worth of the firm in its continuous activity can shareholders appraise management or make decisions to buy and sell their shares.<sup>38</sup>

Notwithstanding the conceptual soundness of economic value, certain practical limitations must be recognized which include:<sup>39</sup>

- a. The estimation of the total future revenue and cost streams for the whole firm with the existence of uncertainty.

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<sup>35</sup>Robert T. Sprouse and Maurice Moonitz, "A Tentative Set of Broad Accounting Principles for Business Enterprises," Accounting Research Study No. 3 (New York: American Institute of Certified Public Accountants, 1962), p. 20.

<sup>36</sup>American Accounting Association Committee on Concepts and Standards, Accounting and Reporting Standards for Corporate Financial Statements and Proceeding Statements and Supplements (Columbus, Ohio: Ohio State University Press, 1957), p. 4.

<sup>37</sup>Penman, "What Net Asset Value?" 336.

<sup>38</sup>Ibid., 338.

<sup>39</sup>Ibid., 339.





- b. The assignment of those total cash streams to specific assets in exact proportion to the measure of the asset's contribution to the total streams. This is further complicated by the fact that cash flows are derived not from specific assets, but rather from combination of assets.
- c. Cash flows are generated, in an economic sense, by the whole process of production. Hence the possession of certain productive assets in a given combination is not the sole source of cash flows.

Thus, it would seem that the inherent nature of fixed assets makes objective measures of future cash flows derived from them a practical impossibility.<sup>40</sup> Consequently, it is necessary to compromise conceptual soundness in order to devise practical methods for the measurement of asset values.<sup>41</sup>

#### Current Cost/Replacement Cost

The concepts of replacement cost and current costs are often merged in discussion and will therefore be considered somewhat jointly here. One author cites the chief difference between replacement-cost and current-cost theories as being the notion that former totally disregards historical cost as being irrelevant, while current cost can be applied within the confines of historical cost incurred.<sup>42</sup>

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<sup>40</sup> Ibid., 342.

<sup>41</sup> Kenneth W. Lamke, "Asset Valuation and Income Theory," Accounting Review, XLI (January, 1966), 34.

<sup>42</sup> Smith and Ashburne, Financial and Administrative Accounting, p. 289.



Current cost has been defined as the last actual price paid by the accounting unit, or is conceived more broadly as including any actual cost incurred during the current period. In this latter case, then, only costs incurred in a prior period would be converted.<sup>43</sup> It becomes immediately apparent that arriving at current cost of fixed assets is not easy. Any fixed assets acquired during the period, of course, would be depreciated on historical cost for that one period without any adjustment. Only depreciation on those properties acquired prior to the period would need amending. Current cost of any of these facilities could be inferred from the price actually paid during the year for an identical article; but when no like assets had been purchased during the period, it would be necessary to resort to an arbitrary price, such as of the middle of the year, or a price index. Sidney Davidson brings the difficulty to light in discussing the suggestion of a current cost of capacity base for computing depreciation in public utilities:

The notion of basing depreciation on the current cost of productive capacity being utilized is in harmony with sound economic reasoning . . . Implementation of such a proposal presents grave difficulties, however. In order to determine the depreciation base it would be necessary each year to determine the cost of obtaining modern plant units capable of producing the same service as the existing plant. To be at all workable such a plan would have to rely on index number series of the cost of various types of capacity. Adequate indexes of this type do not now exist and because of their highly specialized nature, it is doubtful that acceptable ones can be developed even for fairly broad segments of plant . . . There is also a note of logical incongruity in the inclusion in the same expense total of depreciation charges based on the cost of a hypothetical up-to-date plant and the actual expenses incurred for fuel, labor, and maintenance in operating the

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<sup>43</sup> Ibid.



older and presumably less efficient existing plant.<sup>44</sup>

Before proceeding on, it may be prudent to pause and consider specific indexes and appraisal value, both of which have been applied to both replacement and current cost concepts.

### Appraisal value

Concept: Appraisal value refers to the results of systematic professional analysis of "property facts, rights, investments, and values, based primarily on a personal inspection and inventory of the property" and presumably conducted by an independent expert.<sup>45</sup> The results would ordinarily be expressed in terms of reproduction cost less accumulated depreciation although, for certain types of property, plant, and equipment (e.g., land), current market values represent a major consideration.

The use of appraisal values has to some degree been embraced by "generally accepted accounting principles." Accounting Research Bulletin 5, issued in April 1940, contained the statement that "Accounting for fixed assets should normally be based on cost, and any attempt to make property accounts in general reflect current values is both impractical and inexpedient. Appreciation normally should not be reflected on the books of account of corporations." Nevertheless, the bulletin went on to make recommendations "where appreciation has in fact been entered on the books."<sup>46</sup>

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<sup>44</sup>Sidney Davidson, "U. S. Supreme Court, Decisions Affecting Public Utility Depreciation," Journal of Accountancy, Vol. 96 (September, 1953), 331, cited in Smith and Ashburne, Financial and Administrative Accounting, p. 290.

<sup>45</sup>Association of Appraisal Executives, Basic Standards of Appraisal Practice and Procedure (Washington, D.C.: Association of Appraisal Executives, 1936), p. 10 cited in Harvard Round Table, Measurement, p. 80.

<sup>46</sup>AICPA, Committee on Accounting Procedure, Depreciation on Appreciation, Accounting Research Bulletin No. 5 (New York: AICPA, 1940), p. 37, cited in Harvard Round Table, Measurement, p. 81.





In Accounting Research Bulletin 43, issued in 1953 a different attitude is reflected: "Historically, fixed assets have been accounted for on the basis of cost. However, fixed assets in the past have occasionally been written up to appraised values because of rapid rises in price levels, to adjust costs in the case of bargain purchases, etc!"<sup>47</sup>

Attributes: It is argued that when carrying values based on historical costs are significantly different from current values as determined by appraisal, the balance sheet no longer represents a useful statement of financial position--the disclosure of "historical costs not yet amortized" has no economic significance. In advocating the use of appraisal values, however, major emphasis is usually placed on the measurement of income.<sup>48</sup>

#### Specific indexes

Specific indexes purport to measure the change in price of specific items or groups of specific items. Plant assets might be adjusted by applying an index of the cost of constructing plants; construction indexes show a greater increase than does, for example, an index of consumer price. There is also the possibility that almost any number of specific indexes might be constructed, using available evidence as to the current replacement costs of the particular items being adjusted.<sup>49</sup>

Although prices generally move together in times of inflation, they do not maintain fixed relationships. The value of the dollar declines in an inflationary period, but the measurement of the amount of the decline is a

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<sup>47</sup> AICPA, Committee on Accounting Procedure, Restatement and Revision of Accounting Research Bulletins, op.cit., p. 73, cited in Harvard Round Table, Measurement, p. 81.

<sup>48</sup> Harvard Round Table, Measurement, p. 82.

<sup>49</sup> Kennedy and McMullen, Financial Statements, p. 451.



balance sheets and income statements comparable and valid on an interperiod basis only where:

- a. The assets being used are to be replaced.
- b. The changes in the assets' cost are in the same direction (either increase or decrease) over the assets' useful lives.<sup>53</sup>

Further, there are so many "environmental influences" which materially affect a firm that their impact cannot be reflected merely by using the current costs of measurable assets in the preparation of financial statements. Thus, he deduces that the use of current cost data would create many obstacles to the successful use of financial statements in the process of firm valuation/management evaluation.<sup>54</sup>

A security analyst writing on current value accounting, which he terms "fair value," looks at it from the standpoint of objectivity and relevance in regard to the two aforementioned procedural methods--specific index and appraisal--and concludes:

Current value accounting also raises eyebrows among analysts. First, there is a feeling that, with all of its weaknesses, historical cost accounting offers at least one overriding merit--consistency. Security analysts feel that fair value accounting may turn out to be a fantastic hunting ground for the fast-buck artists who stay up nights thinking of ways to beat the accounting game while the rest of us are sleeping. The various concepts and approaches to fair value accounting are fascinating and could offer valuable insights into some of the controllable and non-controllable aspects of a company's business life. But fair value earnings are hardly the sort from which dividends are paid, and it is dividends and market price which investors are interested in. The only accurate way to do what is proposed in fair value accounting is to make appraisals of all properties and inventories and, frankly,

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<sup>53</sup> Ibid., 353.

<sup>54</sup> Ibid.



there just aren't enough appraisers in the world to do that job. Using various indices of inflation would obviously be simpler, but the results would be pure nonsense for the individual company.<sup>55</sup>

Another contemporary writer on the subject of current cost took a hard look at what he perceives as a conceptual deficiency of current cost, and asserted that current cost implies replacement of assets, services, or processes when in fact replacement may not be intended. Accordingly, the values upon which decisions to hold assets are based almost always will differ from current cost estimates.<sup>56</sup>

In commenting on procedural limitations manifested in the measurement difficulties briefly alluded to above, he postulated the following.<sup>57</sup>

If perfect markets existed for all or most of the assets held by firms, a determination of current cost might be feasible. That markets for fixed assets--the category of assets which causes the most concern when prices are changing--are not perfect is generally known. The differences between the net realizable value and the current cost to replace is likely to be significant. A determination of market values in such a situation would be almost impossible to verify in any meaningful sense since the accountant would be at a loss to certify that any price quotation was authentic, firm, and the best obtainable. It is small wonder, therefore, that current cost advocates rarely rely on market price quotations, but rather emphasize appraisals or specific index number adjustments of historical cost.

Appraisals fell into disrepute in the 20's and 30's because of the infinite variety of opinions, techniques, and results which depended upon the appraiser and the purposes of the appraisal. Nothing has been noted which has changed basically the nature of appraisals, and the problem of verification of appraisal facts remains.

Index-number adjustment of historical costs presents

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<sup>55</sup> Frank E. Block, "A Security Analyst Looks at Accounting," 24.

<sup>56</sup> Matthews J. Stephens, "Opening Pandora's Box of Current Cost," Financial Executive (May, 1967), 60.

<sup>57</sup> Ibid., 62.





many problems, but a determination of current costs by this method seems to be suggested more frequently than either of the other methods. Ease, less expense, and the supposed objectivity of an index number probably account for this preference.<sup>58</sup> However, the question of which index to use becomes important. Generally speaking a specific index would be appropriate, but just how "specific" is debatable. Yet the current cost of an asset can vary substantially depending upon the choice of the index. For example the machinery and automotive products section of the wholesale price index stood at 153.1 (1947-49 = 100) in December, 1961, but the subsections of this index ranged from 182.3 for metal working machinery to 140.7 for motor vehicles.<sup>59</sup>

The most pertinent objection to index number adjustments of accounting statements arises from the fact that there is no general agreement on how to handle implicit quality improvements that stem from technological change. If improved design and methods of manufacture, as examples, do not involve cost increases, they are generally overlooked in the price index. These improvements, however, can lead to greatly reduced costs to users of the assets. What is being argued, however, is that unless implicit quality changes are built into index numbers, adjustments of historical cost are unsuitable for accounting statements and can only lead to confusing and misleading results.

Current cost estimates are to be used for the measurement of operating costs and profits that are influenced significantly by quality improvements in productive assets. Changes in design and improvements in material and make-up of operating assets lead to lower factor and maintenance costs directly, not to mention possible indirect benefits from employee comfort, corporate prestige, and the like. Determination of the current cost of old assets through the multiplication of historical cost and an index number relative which ignores implicit quality changes distorts asset costs directly; as these asset costs are amortized, production costs and operating profits are likewise distorted. Companies with old equipment will be forced to reflect depreciation based on the current cost estimate, but there will be no offset for the higher material, labor and maintenance costs often associated with older assets. Assuming rising prices, rate of return computations suffer in two ways: income is too low and asset valuations are too high relative to

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<sup>58</sup> Edgar O. Edwards and Philip W. Bell, The Theory and Measurement of Business Income (Berkeley: University of California Press, 1961), p. 284, cited in Stephens, "Opening Pandora's Box," 62.

<sup>59</sup> Federal Reserve Bulletin (February, 1962), pp. 225-27, cited in Stephens, "Opening Pandora's Box," 62.



companies with newer assets. The end result of index number adjustments might be more meaningful than strict use of historical cost in any particular case, but it would be extremely difficult to identify the case or quantify the meaning. The public accountant could not certify the adjustment in any sense other than arithmetically. In planning for future replacement, discounted expected future cost would seem to be relevant. Little can be said for the sole use of either yesterday's or today's current cost as a measure of expected future costs. Very few, however, argue for resale value of assets or discounted future costs as a basis for accounting statements. Lack of objectivity, short- versus long-run considerations, and forecasting difficulties probably account for most of the resistance to these measurements.

As a measure of the value of the firm, the total of current costs of individual assets is often so far removed that it is meaningless. The point is that investors do not buy individual assets, rather they buy a part of entity value which is based upon future cost flows. If aiding investors is the primary aim of financial statements, accountants would do better to present cash flow forecasts than current cost estimates of assets that may or may not be replaced in productive processes that may or may not be continued.

As was stated above, the term "replacement cost" is often used interchangeably with "current cost," a phenomena which may be explained by the following:

The term (replacement cost) has been used to mean the anticipated cost of replacing an asset when it will be retired, the current cost of replacement of a precisely similar asset or building in the same location, the cost to obtain an asset that will provide the same service as the existing asset, the current value of the service provided by the existing asset or to be provided throughout the remaining life of the asset, and the original cost adjusted by specific cost indexes.

The two most important interpretations of "replacement cost" are (1) that it represents a good approximation of current value to the firm, and (2) that it represents a measure of the specific investment purchasing power of the original investment. Much of the current literature on the subject implies that the term "replacement cost" can mean only current values. But many writers have used the term in the second sense or else they have not indicated which meaning is relevant





to their discussion.<sup>60</sup>

The crux of the intent of the concept is that the replacement cost of a specific asset is the current cost of an identical asset or the "equivalent" cost of the asset's service. Just as the original cost of the asset represents an objective measure of the input value at the date of acquisition, the current replacement cost is intended as an objective measure of the current input value at a subsequent date or at the time of use.<sup>61</sup> In essence the advocate of replacement cost contends that the cost which is relevant in the event of the sale of a unit of product or any other asset, or the consumption of any good or service, is not the cost when the good or service was actually acquired, but what it will cost to replace that unit of property or obtain that service when the company again goes to market for the identical commodity or service.<sup>62</sup>

#### Limitations - theoretical and practical

As may be inferred from the discussion on "current cost," measurement of replacement cost or value is difficult at best. Some measurement methods proposed are (1) inquiry of manufacturers or suppliers as to current prices of identical assets, which would involve the keeping of detailed records of all fixed assets owned and which would require that the price of an improved model which may have superseded the particular model owned would have to be discounted, or (2) use of a price index designed for the particular kind of asset or the particular class of asset.<sup>63</sup>

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<sup>60</sup>Hendriksen, "Purchasing Power and Replacement Cost Concepts," 487.

<sup>61</sup>Ibid.

<sup>62</sup>Smith and Ashburne, Financial and Administrative Accounting, p. 286.

<sup>63</sup>Ibid., p. 287.





Although a direct appraisal of the asset owned could be used until such time as either of the above methods could be applied, many people shy away from the appraisal approach because of the loss of objectivity and perhaps the cost of frequent appraisals.<sup>64</sup>

The approximation of current replacement cost by the application of specific price indexes is intended to accomplish results similar to those derived from appraisal but with greater ease and objectivity and less cost of application. With such a method in use, replacement cost has been described as essentially a "cost method" in that the values would ordinarily be based directly on historical acquisition cost.<sup>65</sup>

The rationale for the use of "price-index replacement cost" is identical with that for appraisal value. Again it is assumed that the balance sheet figures would have greater economic significance than unadjusted historical cost information. The major emphasis, however, is on sharpening the measurement of income by distinguishing between operating profits and exogenous gains and losses. Presumably the former are attributable to management and are more likely to be indicative of reasonable future expectations, while the latter tend to be less predictable and unrelated to dividend and growth potential.<sup>66</sup>

It has been contended that because "price index replacement costs" can be based on known and accepted published price indexes and historical acquisition costs, the method retains in full measure whatever objectivity advantage may properly be attributed to historical costs. It requires the

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<sup>64</sup>Oscar S. Gellein, "Price Level Accounting," p. 108.

<sup>65</sup>Harvard Round Table, Measurement, p. 83.

<sup>66</sup>Ibid., p. 85.



use of certain computational techniques which are not particularly complicated but which do represent some additional "cost" of application compared to the use of unadjusted historical costs. It is assumed, however, that the cost of application is less than that involved in recurring appraisals. Any managerial influence which might be reflected in the results of appraisals is precluded.

Edwards and Bell sum up the attributes of price-index replacement cost as follows:

The use of indexes . . . to adjust known historic costs in order to estimate current costs of purchase implies the necessity of individual judgment, of course. So, too, does the estimation of an asset life and the establishment of a pattern for depreciation charges over the life of the asset. But we believe that (1) the derivation of current values for fixed assets can be accomplished on a consistent and objective basis with the information now available; (2) the quality of the information and the speed of reporting should improve if there is more extensive use of the data; (3) such estimates would be necessary only for some of the fixed assets held by the firm, i.e., only for those assets not currently marketed; (4) historic costs would be retained in the accounts; and (5) . . . adjustment on the basis of . . . (certain) indexes would make a substantial difference in the information available to managers and outsiders on operating gains and holding gains--for the decade 1947-1949 to 1957-1959, prices in general rose by only 15-18 per cent, but construction costs increased by 40 per cent, and the price of machinery rose by 50-70 per cent.<sup>67</sup>

Others are not satisfied that replacement cost can be ascertained on any reasonably objective basis. One critic has concluded: replacement cost still stands condemned because it is patently impossible of objective measurement. Obviously, if the only criterion of objectivity is that someone else can recompute on the specified basis and come up with the same answer, objective measurement is easily attainable. If, however, the

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<sup>67</sup> Edgar O. Edwards and Phillip W. Bell, The Theory and Measurement of Business Income (Berkeley: University of California Press, 1961), pp. 187-88, cited in Harvard Round Table, Measurement, p. 86.





criterion is that another knowledgeable person can independently arrive at the same conclusion based on a reasoned application of his knowledge to the facts at hand, the impossibility of the assignment becomes apparent.<sup>68</sup>

A distinction is sometimes made between replacement cost and reproduction cost, with the former referring to the cost of equivalent property while the latter is intended to mean the cost of identical property.<sup>69</sup> The distinction is brought out by Paton and Paton who say:

. . . the significant replacement cost is the cost of providing the existing capacity to produce in terms of the most up-to-date methods available. Thus it's largely a waste of time to estimate the cost of replacing an obsolete or semiobsolete plant-unit literally in kind; such an estimate will neither afford a basis for a sound appraisal of the property nor furnish a useful measure of current operating cost. The fact of interest is what it would cost to replace the capacity represented in the existing asset with a machine of modern design. To put the point in another way, cost of replacing in kind is a significant basis on which to measure the economic importance of property in use only in the case of standard, up-to-date facilities.<sup>70</sup>

Yet even this delineation apparently does not alleviate the measurement problems. Indeed, one author has concluded that:

Selection of the reproduction concept leads to many problems including those associated with the selection of an index of cost from the multitude of indexes available. The selection of the service replacement concept leads to practically insurmountable problems caused by rapid technological change. Whatever the choice, it can be effectively argued that the determination of a specific amount for particular assets will, in effect, be an appraisal, subjectively determined.<sup>71</sup>

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<sup>68</sup>Dickens and Blackburn, "Holding Gains," 324.

<sup>69</sup>Harvard Round Table, Measurement, p. 83.

<sup>70</sup>William A. Paton and William A. Paton, Jr., Asset Accounting (New York: MacMillan Co., 1952), p. 325, cited in Harvard Round Table, Measurement, p. 84.

<sup>71</sup>Dickens and Blackburn, "Holding Gains," 325.





Perhaps of equal if not greater importance than the associated measurement problems is what many construe as the theoretical limitations of the replacement concept. Thus, whereas replacement cost is proposed by many as the most appropriate measure of economic value, Dickens and Blackburn deny that the concept provides a reasonable measure of the economic value of assets. It is their contention that acceptance of the replacement cost concept would implicitly connote that retention of an asset which a business owns is presumptive evidence that acquisition of that asset at current replacement cost would be economically sound. Thus, whenever acquisition of an asset at current replacement cost would not be economically sound in terms of the asset's future revenue generating power, its replacement cost cannot represent its economic value.<sup>72</sup>

They base their argument on the fact that once a firm has committed its funds in the purchase of specialized specific assets, it is obvious that those funds cannot be retrieved, and generally the only recourse available is to use the assets so long as their use is economically feasible. Continued use will remain feasible so long as the contribution of the asset to total income exceeds the out-of-pocket cost plus opportunity cost of using the asset which usually will be the anticipated decline in scrap or resale value.<sup>73</sup> Thus, the acquisition of replacement units and the repair or renovation of the basic assets becomes in effect an out-of-pocket cost in decisions regarding continuing operation. Accordingly cost to replace either the specific asset or similar services is entirely irrelevant to a determination of economic value in these cases.<sup>74</sup>

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<sup>72</sup>Ibid., 315.

<sup>73</sup>Ibid., 316.

<sup>74</sup>Ibid., 317.



It has been asserted that the replacement-cost approach fails generally because of the doubt as to the validity of subjectively determined future costs and because of the truth of the argument that replacement in kind is rarely desirable or possible, what with the steady progress in technology.<sup>75</sup> It would seem that a more serious deficiency of the concept lies in its apparent non-success in providing a relevant measure of general economic well-being. Thus, if replacement costs are at all relevant to the problem of meeting the price-level problem, it would seem that they should reflect some measure of purchasing power. But, to reflect purchasing power they must be computed by multiplying original costs by price indexes; current values not directly related to original invested costs are not appropriate. When specific or group price indexes are used to convert historical costs to a current replacement cost basis, the result is not necessarily a good approximation of current replacement values but it may be an approximation of specific purchasing power.<sup>76</sup>

#### A Choice - The Most Viable Alternative

It is contended that the question of relevancy to the price-level problem is more important than the computation of specific purchasing power. Most firms probably do not intend to replace with assets of the same type as formerly used. And even when they do, they have an opportunity to change their type of investment over time if changes in specific prices indicate that such a course of action would be better for the operations of the firm. Therefore, it would seem that specific purchasing power is too narrow a concept for adjusting for changes in the general price level and even for

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<sup>75</sup>Smith and Ashburne, Financial and Administrative Accounting, p. 289.

<sup>76</sup>Hendrikson, "Purchasing Power and Replacement Cost Concepts," 489.



adjusting for changes in the level of prices facing most business firms.<sup>77</sup>

Of all of the proposals concerning departure from the historical cost basis, replacement cost and adjusted historical cost have been the most widely discussed. As we have seen each has both its merits and limitations. Insofar as a determination of one or the other as an intrinsic absolute measure of current economic well-being, it has been alleged that "true value" and "absolute value" are misnomers; that any asset can have a number of values which vary according to the business transaction or purpose to which they are applied and the circumstances involved.<sup>78</sup> It has even been suggested that cost (whether it be current cost to reproduce the specific asset in use, or the current cost to replace the services rendered by the asset or both), historical cost, and historical cost adjusted for price level changes, all suitably defined and labeled, be presented side by side in the published accounts. Indeed, this would go a long way towards providing a basis upon which stockholders and other interested parties can project the earnings and financial condition of the enterprise according to their own requirements.<sup>79</sup>

While the foregoing has obvious merit, it is equally obvious that cost considerations would probably preclude its wide-adoption as an accounting convention. Although it would be interesting to examine the academic implications of such a proposal, such is indeed beyond the scope of this paper. Rather what we are seeking is a practical basis on which to value fixed assets. It would seem that such a basis must provide a greater utility to stockholders and prospective investors than does the historical-

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<sup>77</sup> Ibid., 490.

<sup>78</sup> John Heath, Jr., "What is Value?" Financial Executive (June, 1971), 15.

<sup>79</sup> Wells and Cotton, "Holding Gains on Fixed Assets," 833.







cost basis while being both sufficiently objective to avoid overriding theoretical objections and economically feasible to permit wide adoption. It is contended here that the adjusted historical cost basis seems to best meet these considerations. The relative merit of this basis over others proposed is succinctly stated by Dickens and Blackburn:

The adjusted historical cost method of accounting is still a cost basis method. The adjustments proposed are to eliminate from the accounts the distortions caused by the changing general purchasing power of the dollar. No attempt is made to reflect "current values" in accounting for fixed assets. These adjustments to measure the cost of all items on the financial statements with the same measuring unit are badly needed. The basic advantage of the use of this method to the exclusion of other methods proposed includes the following: adjusted historic cost is not subject to manipulation and it does not provide a device whereby reported income can be deliberately distorted; the reporting relates to stewardship over the general economic power invested by the owners rather than the specific physical capital to which that economic power has been committed by management . . .<sup>80</sup>

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<sup>80</sup> Dickens and Blackburn, "Holding Gains," 325.



## CHAPTER V

### MEASUREMENT OF PROFITABILITY

#### The ROI Concept

Chapter IV examined some possible alternative bases for valuing fixed assets and concluded that adjusted historical cost predicated on some measure of the general price level would seem to have the most universal applicability, and receive the greatest theoretical acceptance while perhaps providing for a more valid measure of the well-being of a business to the stockholder or prospective investor.

The economic well-being of a firm is generally thought of in terms of "profitability." This term is rather innocuous as it stands, however, with most purposes requiring a more rigid definition. Thus profitability in the normative context is usually equated to "net operating margin on sales," a concept intended to measure the results of the normal operations of a business. Comparisons of the profit margin of a particular company with margins realized by competitors will normally shed light on management performance and competitive position. However, the margin on sales is merely one of the two elements that together determine earning power. The other is the ratio of sales volume to capital investment.<sup>1</sup> As president of a large American corporation stated, "profits mean something only when related to how much money you have invested in the business."<sup>2</sup> Where large

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<sup>1</sup>Robert F. Bryan, "Interests of the Investor and Manager," in The Financial Executive's Job, Financial Management Series No. 99 (New York: American Management Association, 1952), p. 25.

<sup>2</sup>First National City Bank Monthly Letter (October, 1957), p. 117, cited in Louis K. Brandt, Business Finance: A Management Approach (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 69.



sales volume is developed with a relatively small capital investment, even a low margin on sales may yield a very satisfactory return on the investment.<sup>3</sup> Accordingly, the efficiency of operations is often measured by what is known as "Rate of Return on Investment" referred to hereafter as ROI. ROI is not a substitute for the internal analysis of the profit margins of short-run operations as is often the concern of managerial accounting. However, the measure does have certain advantages in measuring efficiency and as an indication of profitability to the investor or potential investor. First, the investment base is relatively stable, and second, stockholders have an easier time, and should have a greater concern in identifying and relating profitability to their investments in the business than they do with sales.<sup>4</sup> This is not to infer that the ROI base should be Stockholders Equity, for one of the precepts of financial management dictates that it is often advantageous to "trade on the equity," that is incorporate a large portion of long-term debt into the capital structure of the company in effort to maximize the net income per share. Accordingly, the investment base to be used in measuring ROI and thus the overall profitability of the firm should include investments by creditors. Actually, there are many somewhat similar but varying measures of the investment base under this broadened concept. Such measures include "Total Investment," which is equal to total assets less the estimate made for bad debt losses in the receivables, and less allowances made for depreciation of buildings, machinery and equipment; and "Gross Capital Investment," which is equal to total assets minus current liabilities, which is in turn equal to the sum of gross working capital (current assets) and fixed capital (gross fixed

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<sup>3</sup>Bryan, "Interests," p. 25.

<sup>4</sup>Brandt, Business Finance, p. 70.





assets).<sup>5</sup> The difference between the two measures is largely academic, both being employed for particular purposes. Thus, while it is widely held that the ultimate test of any business is the rate of income earned on the capital invested, with the return on capital measured by the ratio of income to capital, what constitutes capital often depends on the objective of the measurement.<sup>6</sup> For our purposes we shall use the "Gross Capital Investment" concept which is employed by the DUPONT MODEL, a widely recognized model for measuring corporate profitability.<sup>7</sup> Accordingly, we

shall measure profitability as: 
$$\text{ROI} = \frac{\text{NET OPERATING INCOME}}{\text{current assets} + \text{gross operating fixed assets}}$$

The denominator - the element of  
fixed assets in the investment base

For the average manufacturing business the proportion of fixed assets in the investment base is substantial. One example using the DUPONT MODEL displays a proportion of 65%.<sup>8</sup> The Balance Sheet of Caterpillar Tractor Company as of December 31, 1950 showed the proportion to be 37%.<sup>9</sup> In either case the implication is clear that the valuation of fixed assets on the balance sheet is going to have a substantial impact on the measurement of managerial efficiency in using the capital invested in the business.

It has been noted that the total of the fixed assets is usually an extremely complex item affected by the price level at the date of acquisition

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<sup>5</sup> Ibid.

<sup>6</sup> Myer, Financial Statement Analysis, p. 193.

<sup>7</sup> J. Fred Weston and Eugene F. Brigham, Managerial Finance (3rd ed.; New York: Holt, Rinehart and Winston, 1969), p. 75.

<sup>8</sup> Ibid.

<sup>9</sup> AICPA, ARS 6, p. 242.



of the assets and the length of time that has elapsed since acquisition.<sup>10</sup> Thus, it is conceivable that when an enterprise has been operating for many years, with the capital stated according to conventional procedure in terms of the purchasing power of the dollar at the time of various acquisitions and the earnings in current dollars, the ratio of earnings to capital invested can be quite misleading. The ratio becomes more realistic when the capital is restated in the same purchasing power units as the earnings.<sup>11</sup> One critic of conventional accounting procedures has concluded that although the ratio of profits to capital is an important indication for the investor, if capital is not restated then profits are measured on a capital which is nothing but an arithmetical balance on which no opinion of the earning capacity can be based and which has little economic meaning. Thus, a correct picture of the real capital employed in the business can only be given if assets are calculated on the basis of current price levels.<sup>12</sup>

The numerator - depreciation as a  
determinant of net income

In Chapter IV we looked at alternative means of restating fixed assets, concluding that a price-level general-index adjustment to historical cost provided the best combination of being the most utilitarian and theoretically acceptable of the alternatives. Thus, we have a more realistic basis upon which to restate our capital investment base, and we shall take up an application of price-level adjustments to fixed assets later in

<sup>10</sup>Myer, Financial Statement Analysis, p. 194.

<sup>11</sup>Ibid., p. 63.

<sup>12</sup>A. Goudekot, "An Application of Replacement Value Theory," Journal of Accountancy (July, 1960), 46.



the chapter. But what of the other component of our chosen measure of profitability, the numerator of the ROI ratio? Anyone with an elementary knowledge of accounting knows that depreciation acts as a determinant of net income. Accordingly, it follows that the base upon which depreciation is calculated will likewise have serious implications in the measurement of net income. The following commentary illustrates the effects of a rising price level on profitability and corporate well-being when conventional accounting measurements are used:

The effect of valuing long-lived assets at historical acquisition costs, and then computing depreciation expense on the basis of these costs is to understate the value of plant and equipment assets on the financial-position statement and to understate the depreciation expense on the earnings statement. Reported earnings thus tend to be overstated. This is probably the most serious distortion caused by inflation on financial statements. Serious misinterpretations can arise. For example, the rate of return on owners equity will be overstated because it is subject to a "two-way" basis; the numerator (net savings) of this ratio is overstated, due to understated depreciation, and its denominator (owners' equity) is understated due to understated asset values.

Overstatement of reported earnings tends to increase the stockholders' desire for dividends, and of course larger earnings mean higher income taxes. Both dividends and taxes require a cash flow out of the enterprise. In a period of continuing inflation an excessive cash outflow could seriously hinder the ability of the firm to maintain its pool of assets, because replacement assets will cost more (due to inflation) than has been retained in the firm through retained earnings (after taxes and dividends) and depreciation-expense allocation based on the historical acquisition cost of the old assets.<sup>13</sup>

Looking further into the misstatements precipitated by conventional accounting procedures, William A. Paton has asserted:

In the field of corporation accounting the impact of the declining purchasing power of the dollar, in the face of procedure under which the phenomenon has been ignored has been in two main directions: (1) understatement of corporate

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<sup>13</sup>Fertig, Istvan, and Mottice, Using Accounting Information, p. 424.





resources employed; (2) overstatement of corporate profits. As to the extent of these basic misstatements there is room for argument, but the amounts are substantial, for many individual companies and for industry as a whole can hardly be denied. In a careful study covering the period 1947 to 1956, George Terborgh estimates that the aggregate overstatement of corporate earnings was \$43 billions, or 30% of the corrected total of \$144 billions. Other studies confirm Terborgh's conclusion that "posterior profits as reported have been grossly overstated."<sup>14</sup>

To recapitulate, it has been predicated that probably the most widely accepted definition and measurement of profitability is the rate of return on investment.<sup>15</sup> However, there is no widely used measurement that is likely to be affected more seriously by inflation than ROI for two very important reasons:

1. Reported earnings will be overstated principally because depreciation expense is stated in terms of dollars of an earlier year.
2. Owners' equity as reported in the conventional statement of financial position will be understated compared with what owners' equity would have been had all the assets been stated in terms of current dollars.

This means that measuring the rate of return on investment compounds this error.<sup>16</sup> Thus,

$$\frac{\text{overstated earnings}}{\text{understated investment}} = \text{Doubly overstated rate of return}$$

It can be argued that these errors "wash out" when rate of return is used as a basis for comparison of profitability between firms, but this

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<sup>14</sup>Paton, Corporate Profits, p. 36.

<sup>15</sup>Fertig, Istvan, and Mottice, Using Accounting Information, p. 528.

<sup>16</sup>Ibid., p. 531.



argument may not be valid. If the relative size of investment in long-lived assets of the two firms is about the same, and if the companies are about the same size, then rate of return on investment may be used in spite of the bias introduced by inflation. However, if one of the companies were relatively old and the other company relatively new, the rate of return reported by the older company would tend to look better in comparison, but the comparison would be a false one.<sup>17</sup>

### Recovery of "Cost"

Before looking at a comparison of ROI illustrated on both conventional and adjusted bases, let us first turn our attention to a closer examination of the concept of depreciation, its intended purpose, and its implications on maintenance of invested capital in a period of rising prices.

Whether the usefulness of a fixed asset is terminated by physical deterioration or by obsolescence, it is the objective of depreciation accounting to spread the cost of the asset over the years of its usefulness in a systematic and rational manner. As such it is a systematic cost assignment procedure.<sup>18</sup> The cost assigned thus becomes a determinant of the measure of periodic net income or profit. In regard to the magnitude and significance of this assigned cost, it should be noted that although the dollar amounts of fixed assets held by any firm are somewhat dependent upon the type of business operation, it is not uncommon to find that in a manufacturing business such assets represent a major portion of total assets. In a study by the Machinery and Allied Products Institute, investment in plant in the typical manufacturing firm is about one half of

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<sup>17</sup>Ibid.

<sup>18</sup>Finney and Miller, Principles of Accounting - Introductory, p. 290.



the gross revenue, and depreciation rates average 4 percent per annum. On this basis, depreciation charges are typically 2 percent of gross revenue.<sup>19</sup> Accordingly, the relation of depreciation to profit is readily understood. Profit for a period can be broadly defined as what can be spent or disposed of without leaving the individual or the business worse off at the end of the period than it was at the beginning of that period.

In times when the monetary unit fluctuates materially in value--in recent years always upward--a serious problem is created, especially for those who have substantial investments in tangible assets which are being consumed in a trade or business.<sup>20</sup> An indication of the seriousness of the distortion caused by this phenomenon is revealed by such published comments as the following:

The reported net income of 30 oil companies was \$763 millions in 1946 and \$1219 millions in 1947, an increase of . . . 60 percent . . . But the charges for capital extinguishments (depreciation, depletion, etc.) . . . were inadequate to replace . . . this capital . . . The extent to which reported "profits" were thus in effect overstated can be approximately determined by adjusting the capital extinguishment charges, which are expressed in historical dollars, so that they reflect current dollars . . . If this is done we find that the adjusted net income becomes \$418 millions in 1946 and \$513 millions in 1947, an increase of 23 percent . . . It thus becomes apparent that the changing value of the dollar distorts the income account so that the reported net income ceases to be synonymous with profit.<sup>21</sup>

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<sup>19</sup> Machinery and Allied Products Institute, MAPI Accounting Manual (Chicago: MAPI, 1952), cited in Kennedy and McMullen, Financial Statements, p. 445.

<sup>20</sup> William W. Wernitz, "Economic Depreciation," in Controllershship Counters Inflation and Taxes (New York: Controllers Institute of America, 1958), p. 11.

<sup>21</sup> Joseph E. Pogue, Vice-President, Chase National Bank, quoted in Machinery and Allied Products Institute, Bulletin No. 2138, January 21, 1949, cited in Kennedy and McMullen, Financial Statements, p. 442.





In time of inflation there is occasion for concern as to the extent to which profits are being overstated, costs are being understated, inadequate provisions for wear and obsolescence are being made, and failure to recover invested capital is causing inability to make replacements at current prices.<sup>22</sup> Especially discouraging has been the unwillingness of many accountants even to recognize the nature of the problem of correctly measuring cost. There is a lot of loose comment about the importance of adhering to historical cost as the basis of accounting, and the danger of leaving the solid, objective data of "actual cost" for highly uncertain, subjective estimates of values. Aside from overlooking the limitations of recorded cost information, (limitations with which practicing accountants should be very familiar) it doesn't make sense to keep on insisting that a summation of unlike recorded dollars, without conversion, represents "actual cost". Those who defend the "cost basis" in these terms are really repudiating cost, and it is those who are urging the need for conversion of cost data to a common denominator who are supporting the cost basis. It is one thing--although not necessarily commendable--to resist a shift from the cost basis of accounting for resources and expenses to stress upon current market values, but one is not justified in using this stance to confuse the issue, and obscure the need for improvement in measuring and reporting the underlying cost figures themselves.<sup>23</sup>

It is indeed understandable then that during periods of rising prices computing depreciation on the basis of the cost of assets is criticized. The argument goes on to state that if a building cost \$20,000 in 1959, to replace this building might cost \$40,000 in 1979. Therefore,

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<sup>22</sup> Machinery and Allied Products Institute, MAPI Accounting Manual, p. 1002.

<sup>23</sup> Paton, Corporate Profits, p. 44.



depreciation should be based on replacement costs. In the main, accountants have given this idea a cool reception, arguing that directors should withhold profits from stockholders to whatever extent is necessary to replace worn-out assets. It is further argued by accountants that their only task in recording depreciation is to amortize the cost of the assets. At present, the accountants' viewpoint prevails, for depreciation is almost always computed on the basis of cost.<sup>24</sup>

The inadequacy of current depreciation allowances is vividly expressed in an annual report of the Socony-Vacuum Oil Company, Inc., in which the measurement of profits was being discussed:

It is well at this time to reiterate two statements previously made to the stockholders: (1) These earnings are expressed in present-day dollars, the buying power of which is roughly half of what it was before the last war. Current profits should, therefore, be discounted when compared with pre-inflation profits. (2) Corporations primarily on cash realized from charges for depreciation and depletion of properties, plants and equipment for the funds needed to replace facilities worn out or used up. Because of inflation the costs of practically everything we use are greatly increased, but our depreciation charges, based as they must be on original cost, fall far short of the amounts required merely to maintain our facilities. Therefore, some additional funds must be taken out of profits to make up the difference.<sup>25</sup>

The 1956 annual report of Lukens Steel Company stated the problem of depreciation as follows:

Based on economic studies, the cost of purchasing and installing steel plant facilities is 3.8 times as high as it was 20 years ago. Current accounting methods provide for the setting aside of replacement funds only to the extent of the original cost. This results in a serious deficiency of available funds for the replacement of worn-out facilities, and this under-provision of funds also reflects an understatement

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<sup>24</sup> Joseph F. Bradley, Fundamentals of Corporation Finance (Rev.ed.; New York: Rinehart & Company, Inc., 1959), p. 265.

<sup>25</sup> Ibid.



of current production costs, as well as an overstatement of surplus available for dividends.<sup>26</sup>

It has been argued that current depreciation accounting has two logical strikes against it: lack of uniformity where the circumstances warrant uniformity, and lack of relevance of depreciation on original historical cost to the problem of predicting future returns from a going concern to an investor. This view thus holds that the net recurring funds flow during an asset's productive life must provide for full replacement cost before anything can be made available to stockholders. Thus, in terms of the cash that it takes to pay dividends, amortization of the original cost is irrelevant; replacement cost is the relevant cost, and it makes little difference whether the replacement is with similar assets or not.<sup>27</sup>

The American Accounting Association, Committee on Concepts and Standards-Long Lived Assets appears to adhere to the tenets of the above philosophy when it states:

Depreciation reflects the estimated expiration of service potential of the asset. It is usually an important element in the measurement of income from ordinary operations.

Income from ordinary operations should represent an amount, in current dollars, which, in the absence of catastrophic loss or discovery of assets, is available for distribution outside the firm without contraction of the level of its operating capacity; or, stated in another way, the amount which, by retention, is available for expansion of operating capacity. Measurement of this concept of income from ordinary operations can be accomplished only if the expiration of service potential is measured in terms of current cost. That is, in order to continue operations without contracting the level of operating capacity, exhausted services must be restored; the relevant cost of

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<sup>26</sup>Ibid., p. 266.

<sup>27</sup>George J. Staubus, "The Association of Financial Accounting Variables With Common Stock Values," Accounting Review, XL (January, 1965), 133.





expired services is the current cost of restoration.

Income from ordinary operations is important to investors in making investment decisions. This amount, when compared with cash dividends, is relevant to an appraisal of the intent of the management to contract or expand the operating capacity of the firm. Secondly, it facilitates prediction of future income from ordinary operations, assuming that cost other than depreciation are also stated in current terms. Third, interfirm income comparability is improved by universal measurement of depreciation on the basis of current cost. Finally, insofar as depreciation represents a reduction in the stock of assets for which management is responsible, this reduction is more clearly indicated by current-cost depreciation on all assets than by depreciation based on unmodified historical cost.<sup>28</sup>

It may be noted in the two foregoing statements that the terms "replacement cost" and "current cost" are used somewhat synonymously to convey a basic idea. However, as seen in Chapter IV, in regard for proposals of an alternative valuation base for fixed assets, the current cost/replacement cost concept of depreciation is subject to an onslaught of criticism on both practical and theoretical grounds. AICPA ARS 6 points out that:

To insist that replacement cost should be covered by the total depreciation charges during a period of rising prices means that more than the depreciation charge based upon current appraisal value would have to be charged each year to make up for the deficiencies of past periods, and this would result in costs clearly out of line with reality.

The original cost was the investment made by the owner and, as long as the original cost basis of valuation is the basis generally accepted by the business community and by accountants, only that investment, expressed in dollars comparable to those used for other expense and revenue items, should enter into the determination of the profit or loss over the life of the asset. The excess of the replacement cost over such amounts charged to operations is an additional capital cost to be financed by additional capital investment, by borrowing, or by the retention of earnings.<sup>29</sup>

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<sup>28</sup> American Accounting Association, "Accounting for Land, Buildings, and Equipment," 696.

<sup>29</sup> AICPA, ARS 6, p. 34.



Thus it is held that:

The problem of financing replacements is not the same as the problem of depreciation accounting. Generally accepted accounting principles do not call for the replacement of existing facilities or the maintenance of an existing level of production to be financed out of revenue before a profit can be said to have been earned. Instead, in accordance with the requirements and standards of the business community, they call for accounting measurements to determine if the "capital" (money-cost) embodied in the resources of the business (including its depreciable assets) has been maintained, increased, or decreased. Furthermore, there is not even a requirement that the "capital" be held in any particular form, but merely that we know whether it has been maintained in total.

If the general price level has not changed, the entire excess of replacement cost over original cost represents an additional capital requirement which should be treated as such. If the general price level has risen, it is proper to insist that all operating costs should be stated in comparable dollars; any excess of replacement cost over the adjusted original cost then becomes the additional capital requirement.<sup>30</sup>

Perhaps the heart of the problem lies in the usage of terms such as "Reserve for Depreciation" and the widespread belief that depreciation is a source of funds. Paton offers ample clarification of this misconception when he says:

Recognizing expenses, it should be emphasized, is part of the income-measuring process; it is not a source of funds or a means of financing. And there is nothing basically peculiar about depreciation in this connection. It would be wonderful indeed if all that were necessary to provide more money for the business was to increase the depreciation charge, but the plain fact--which even people untrained in accounting should be able to see--is that recognizing depreciation doesn't provide a dime to anybody . . . it is the stream of revenue, the inflow of cash or equivalent from customers, that represents all the funds available from operations, and this total inflow is not affected by the reckoning of the expenses properly deductible therefrom (ignoring the impact that generally changing costs may have, through the forces of the market, on the level of product prices). Overstatement or understatement of expenses will of course result in understatement or overstatement, respectively, of net

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<sup>30</sup> Ibid., p. 37.





earnings, but the total inflow of funds will not be thereby changed one whit. And increasing or decreasing a particular type of expense--be it depreciation or any other charge--will likewise not have a particle of effect on the amount of the revenue stream, the inflow of liquid resources from product sales. (A change in the depreciation allowed as a tax deduction, like a change in the rules governing any other deduction, will affect the amount of taxes payable, other factors remaining the same, but this is another matter.)

This is not to say that expense recognition has no bearing on financial administration. If, for example, an item of consequence is omitted from expenses, or understated, the crucial figure of net earnings is overstated, with the result that both management and investors are misled as to the results of operation and questionable decisions regarding dividend possibilities and other financial questions may be encouraged. Persistent and substantial overstatement of earnings might even lead to distributions to stockholders, ostensibly from income, that were actually a partial return of capital invested.<sup>31</sup>

Perhaps what has happened is that the objective of the intended criticism is not clearly in focus. Indeed the above statements should give a hint of what should be the concern of critics of conventional depreciation accounting--the return of invested capital.

### The Problem of Capital Maintenance

One of the important preoccupations of accountants and users of accounting information is whether the capital of the entity has been maintained. Income for a period is generally considered to be a residual earned only if the initial capital of the period has been maintained. For example, J. R. Hicks defined income as the amount a man could consume during a period and still remain as well off at the period's end as he was at the period's beginning.<sup>32</sup> This is one of the most widely quoted definitions

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<sup>31</sup>Paton, Corporate Profits, p. 29.

<sup>32</sup>J. R. Hicks, Value and Capital (Cambridge: Oxford University Press, 1939), p. 172, cited in Keith Shwayder, "The Capital Maintenance Rule and the Net Asset Valuation Rule," Accounting Review, XLIV (April, 1969), 305.





of income in accounting literature, perhaps due to recognition of the dependence of income on capital maintenance. Hicks' definition thus implicitly differentiates returns of capital from returns on capital.<sup>33</sup>

One of the concepts of capital maintenance proposed in accounting literature is that capital be measured in homogeneous units of general purchasing power. Income is measured only after the recovery of the investment, measured in the same general purchasing power units as the realized cash receipts.<sup>34</sup> Thus, what we should really be concerned with in any consideration of the deficiencies of conventional depreciation practices is failure to recognize loss of purchasing power. This concept of purchasing power is thus a natural progression and attains its validity from the accounting objective to distinguish between invested capital and income. Capital must be maintained in terms of its purchasing power for a firm to be as well off at the end of the period as it was at the beginning.<sup>35</sup> The Machinery and Allied Products Institute stated and illustrated the essence of the problem very succinctly:

Ordinarily, depreciation recovers simply the number of dollars originally committed to a capital asset, regardless of differences in their purchasing power. This recovery is satisfactory enough in periods of relative stability in the price level, but can be seriously, or even ruinously, inadequate during and after periods of inflation. Under such conditions we cannot assume that "a dollar is a dollar". If a company invests 100-cent dollars and recovers later only an equal number of 50-cent dollars, it has lost one half of its real capital, whatever the books may show. To hold otherwise is to take the shadow for the substance.

Hypothetical Case - Consider an example. A machine costs \$10,000, and is given a life for depreciation purposes of 10 years. Shortly after it is

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<sup>33</sup> Shwayder, "Capital Maintenance," 305.

<sup>34</sup> Ibid., 306.

<sup>35</sup> Hendrikson, "Purchasing Power and Replacement Cost," 484.



acquired, however, the price level starts rising, eventually doubling, so that subsequent annual recoveries represent a diminishing purchasing power. Assuming for convenience only, the conventional straight-line writeoff of original cost, and considering the dollars originally invested as par or 100 cents, we can describe the developments as follows:

Effect of Rising Price Level on Depreciation of a  
\$10,000 Machine With a 10-Year Service Life

Year of Service	Assumed Original-Cost Depreciation	Index of Prices (Date of Invest- ment = 100)	Purchasing- Power Equivalent of Depreciation Charge Col. 1 X $\frac{100}{\text{Index}}$	Number of Current Dollars Required to Equal Depre- ciation in Original Dollars Col. 1 X $\frac{\text{Index}}{100}$
1	\$ 1,000	110	\$ 909	\$ 1,100
2	1,000	130	769	1,300
3	1,000	150	667	1,500
4	1,000	170	588	1,700
5	1,000	190	526	1,900
6	1,000	200	500	2,000
7	1,000	200	500	2,000
8	1,000	200	500	2,000
9	1,000	200	500	2,000
10	1,000	200	500	2,000
TOTAL	\$10,000		\$5,959	\$17,500

The company owning this machine is likely to assume that it has made full provision for recovery of the capital consumed during each year, yet if it looks behind the fiction that a dollar is a dollar it finds at the end of the service life that the total of depreciation, measured in purchasing power at the time of the charge, is only 60 per cent of the original investment. It may or may not have recovered the balance from net earnings, but certainly it has not recovered it via depreciation. So far as that reliance is concerned, it had dissipated 40 per cent of its original real capital. In the meantime it has understated costs of operation over the life of the asset by the equivalent of 4,041 original dollars or 7,500 current dollars, and has overstated net income by a like amount. Moreover, it has probably paid income taxes on this overstatement.

To protect its real capital, the company must recover each year a sufficient number of current dollars to equal that year's depreciation in terms of original dollars. This number of current dollars is necessary, given the time-



distribution of depreciation and the price changes in the case, to recover a purchasing power equal (at the time of recovery) to the \$10,000 originally invested, Superficially it looks like overdepreciation, but it is not. It yields a result in real terms identical with that accomplished by aggregate charges of \$10,000 in a period of stable prices.<sup>36</sup>

It readily becomes apparent that depreciation based on historical cost fails to match revenues with costs of equivalent purchasing power. If it is the objective of the investor that his capital investment be maintained in terms of purchasing power rather than in absolute dollars, he stands to be seriously misled by income measurement under conventional accounting procedures. When net income is measured on the basis of historical costs and the entire residual returned to the shareholder in the form of dividends, in essence what he is receiving is not income per se but a return of his original investment.

#### Adjustment of Depreciation to Match Current Revenues

If an income statement states that the depreciation of fixed assets is six million dollars, what is the significance of this figure? It measures that portion of the original cost of the asset, unadjusted for changes in the price level, which has expired during the period. To be economically significant, depreciation should be expressed in present-day dollars. The revenues must be compared with the costs of obtaining those revenues. The assumption that the accountant can show on his income statement the same depreciation charge with a rising price level as with a falling or a stable price level is a theoretically weak assumption. It ignores the fact that the value of the dollar may change radically.

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<sup>36</sup> Machinery and Allied Products Institute, Realistic Depreciation Policy (Chicago: Machinery and Allied Products Institute, 1953), pp. 17-18.





Matching revenues with the applicable expenses is a concept that is especially important in analyzing accounting information under conditions of inflation, since the purpose of the adjustment to depreciation for the change in the value of the dollar is to match expense dollars against revenue dollars with the same purchasing power. This is a logical extension of a theory which the accountant already makes use of, namely, matching expenses with revenues.<sup>37</sup>

The AICPA has conceded that it is reasonable to maintain that the depreciation charge should be stated in terms of dollars which are comparable to those used in the measurement of other factors in the calculation of net profit, and this is where price-level adjustments enter the picture.<sup>38</sup> Price-level adjustments can be achieved by stating all other costs in terms of the dollar of the period in which the depreciating asset was acquired, or by restating the depreciation and all other items in terms of some other dollar, such as the base-period dollar, or the dollar of the current period. For example, suppose that \$100,000 is invested in a group of assets with an expected life of five years with no scrap value, that the straight-line method of depreciation is used, that the general price index is 120 at the time the assets are acquired and throughout the first year, and that the index increases ten points a year during the next four years. The plan is adopted of adjusting the depreciation each year for the change in the general price level. The results would be as follows:

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<sup>37</sup> Harold Bierman, Jr., Financial and Managerial Accounting (New York: MacMillan Company, 1963), pp. 580-81.

<sup>38</sup> AICPA, ARS 6, p. 34.



<u>Year</u>	<u>Price-Level Index</u>	<u>Unadjusted Depreciation</u>	<u>Multiplier</u>	<u>Adjusted Depreciation as Recorded</u>
1	120	\$ 20,000	120/120	\$ 20,000
2	130	20,000	130/120	21,667
3	140	20,000	140/120	23,333
4	150	20,000	150/120	25,000
5	160	20,000	160/120	26,667
		<u>\$100,000</u>		

The figures in the last column can still be characterized as the results of applying the straight-line method of depreciation, since each one represents the same amount of general purchasing power. Their sum, \$116,667, is, however, a meaningless figure since it is a combination of five different types of dollars with five different values. If the depreciation amounts were converted to the dollar of the fifth year, they would be comparable, and the results would be:<sup>39</sup>

<u>Year</u>	<u>Adjusted Depreciation in Dollar of Each Year</u>	<u>Multiplier</u>	<u>Adjusted Depreciation in Dollar of Fifth Year</u>
1	\$ 20,000	160/120	\$ 26,667
2	21,667	160/130	26,667
3	23,333	160/140	26,666
4	25,000	160/150	26,666
5	26,667	160/160	26,667
			<u>\$133,333</u>

The figures in the last column are those which would appear in an adjusted comparative income statement for the five-year period. The \$133,333 is equal to the converted original cost of the group of assets (\$100,000 X 160/120), so there is no "deficiency" in the amount of depreciation which has been charged to operations because, for example, 23,333 "dollars-of-year-three" are identical with 26,666 "dollars-of-year-five" under the conditions of

<sup>39</sup>Ibid., p. 35.



this case.

If depreciation had been charged at the conventional rate of \$20,000 a year, there would have been a "deficiency" in the charge for depreciation. Expressed in fifth-year dollars, it amounts to \$17,861, computed as follows:

<u>Year</u>	<u>Deficiency for Each Year Expressed in Dollars of That Year</u>	<u>Multiplier</u>	<u>Deficiency Expressed in Fifth-Year Dollars</u>
1	None	-	-
2	\$ 1,667	160/130	\$ 2,052
3	3,333	160/140	3,809
4	5,000	160/150	5,333
5	6,667	160/160	6,667
			<u>\$17,861</u>

Another method of computing the depreciation deficiency is to make the logical assumption that each year's depreciation is expressed in the dollar of that year and convert each amount to the fifth-year dollar, as follows:<sup>40</sup>

<u>Year</u>	<u>Unadjusted Recorded Depreciation</u>	<u>Multiplier</u>	<u>Recorded Depreciation Expressed in Fifth-Year Dollars</u>
1	\$ 20,000	160/120	\$ 26,667
2	20,000	160/130	24,615
3	20,000	160/140	22,857
4	20,000	160/150	21,333
5	20,000	160/160	20,000
			<u>\$115,472</u>
Total Adjusted Depreciation			<u>133,333</u>
Depreciation Deficiency			<u>\$ 17,861</u>

This demonstration of depreciation adjustments is unrealistic in one respect. It would rarely be true that the depreciable assets would have been acquired at the same time. This only means, however, that the assets must

<sup>40</sup> Ibid., p. 36.





be grouped according to age or date of acquisition, and rate and method of depreciation and a separate conversion be made of the cost and depreciation for each group or item. The basic principle is the same.<sup>41</sup>

The upshot of the foregoing is that net income has been drastically misstated by the conventional measurement of depreciation. Professor Sumner Slichter, testifying before a Joint Congressional Committee, stated that during the three years 1946-48 American corporations overstated profits by \$16.4 billion.<sup>42</sup> For the period 1946-50, the Machinery and Allied Products Institute estimated that corporate profits were overstated by \$27 billion.<sup>43</sup>

Historical Cost vs General Price Level Adjusted -  
A Comparative Illustration

It has been assumed by some that during periods of relatively small increases in the price level, even though steady, the effect on published statements would be negligible. This depends on both the cumulative amount of price-level change and the characteristics of the particular concern.<sup>44</sup>

The Reece Corporation states (in its 1961 annual report) that in the five-year period from 1956 to 1961 the increase in the price level was "only" about 10 percent, yet net worth, which increased about 35 percent under

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<sup>41</sup>Ibid., p. 37.

<sup>42</sup>United States Congress, Joint Committee on the Economic Report, Subcommittee on Profits, 80th Cong., 2d Sess., Corporate Profits (Washington, D.C.: Government Printing Office, 1949), p. 3, cited in Kennedy and McMullen, Financial Statements, p. 443.

<sup>43</sup>Machinery and Allied Products Institute, MAPI Accounting Manual, pp. 1003-004.

<sup>44</sup>AICPA, ARS 6, Appendix D, pp. 169-218, cited in Kennedy and McMullen, Financial Statements, p. 443.



conventional accounting methods, went up only 25 percent on a price-level adjusted basis.<sup>45</sup>

The Indiana Telephone Company shows a 1961 net income on a price-level accounting basis of \$320 thousand, compared with \$475 thousand using conventional accounting.<sup>46</sup>

Firms which confined their adjustments to depreciation (Ayrshire Collieries Corporation, Iowa-Illinois Gas and Electric Company, and Sacramento Municipal Utility District) reported for various recent years in which inflation has been moderate that adjusting depreciation reduced net income by 7 percent to 14 percent.<sup>47</sup>

In view of the foregoing discussion regarding the implications of conventional depreciation accounting during a period of rising prices, it would seem reasonable to conclude that price adjusted depreciation as referred to in ARS 6 would indeed provide a more valid measure of net income. It would also seem preferable to derive depreciation from an adjusted fixed asset base, rather than as an index adjustment to depreciation based on historical cost. The former has merit in the application of consistency as well as in providing a necessary adjustment to both the income statement and the balance sheet. Of greater relevance to the purposes of this paper, however, the more comprehensive treatment of adjusting the asset base provides the ingredients for both numerator and denominator of our stated measure of profitability, thus permitting the shareholder or prospective investor to make the calculation on the basis

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<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid., p. 444.



of information presented in the published financial statements. Let us now look at a comparative illustration using historical cost figures and price level adjusted figures in effort to determine if the latter does in fact provide a more valid measure of profitability.

The following balance sheet figures were derived from an actual statement of financial position of a large manufacturing corporation and are summarized by statement categories for purposes of illustration of the relative percentage of fixed assets of total investment.<sup>48</sup>

Current assets	149.2
Depreciable fixed assets (at gross historical cost)	84.1
Land	<u>3.2</u>
TOTAL INVESTMENT	\$236.5M

Reported profits for the same year were \$31.8M. Although actual depreciation figures are not available, if we assume an average depreciable life of 15 years and a straight line basis, depreciation for the year would amount to \$5.6M. Applying the net income and gross investment figures, we derive the following return on investment:

$$\text{ROI} = \frac{\text{net operating income}}{\text{total investment}} = \frac{31.8}{236.5} = \underline{\underline{13.4\%}}$$

Now for purposes of relative percentages let us assume the same historical cost figures for the year 1967, also assuming that the fixed assets on the average are 10 years old. Let us then apply the following index numbers for

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<sup>48</sup>Caterpillar Tractor Company Financial Statements for the year 1950 as reproduced in ARS 6, p. 242.





purposes of adjustment.<sup>49</sup>

1967 - 117.3

1957 - 97.5

Adjusting the historical cost-based fixed assets yields  $\frac{117.3}{97.5} \times$

84.1 = \$100.9M. Depreciation based on this figure would yield a yearly depreciation charge of \$6.73M, thus effectively reducing net operating income by \$1.13M. Our new calculation of ROI thus yields:

$$\frac{\text{Net Operating Income } 30.67}{\text{Total Investment } 253.3} = \underline{\underline{12.1\%}}$$

Although the difference of ROI between 13.4% and 12.1% may not appear to be substantial, for the shareholder or prospective investor choosing among alternative investment opportunities it may be indeed significant. In other instances the variance is much more pronounced. For example, Robert F. Bryan stated:

In the three highly profitable years 1947, 1948, and 1950 . . . for a selected group of some 1,700 leading manufacturing companies the (rate of) return . . . was 17.1, 18.2 and 17.1 (percent) respectively. These postwar rates of return are overstated because book values of fixed assets are still in large part at pre-inflation costs, and depreciation allowances are on the same basis. In the best prewar years approximately this same group of leading manufacturing companies showed earnings of about 12 percent . . .<sup>50</sup>

While it is realized that inflation was more pronounced and most chronic in the years immediately following World War II, it is also recognized that since that time rising prices have become a way of life.

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<sup>49</sup> index numbers based on Gross National Product Implicit Price Deflators 1945-1967 (base year - 1958) as published by United States Department of Commerce, cited in Paul Rosenfield, "Accounting for Inflation - A Field Test," Journal of Accountancy (June, 1969), 47.

<sup>50</sup> Bryan, "Interests," p. 26.



Although the degree of severity on a yearly basis has subsided somewhat over the past decade, as was already pointed out, the cumulative effect over a number of years is substantial.

To reiterate, it has been claimed that errors resulting from overstated earnings and understated investment in ROI calculations will not be significant when comparing profitability between firms. However, as readily seen from the previous example, both the relative size of the fixed asset component of total investment and the average age of fixed assets will have a significant bearing on the ROI. In instances where these differences are greatly pronounced between firms the basis for comparison becomes less and less valid under conventional historical cost valuation. Accordingly, it would thus seem axiomatic that the valuation of fixed assets on a general price level adjusted basis does indeed provide a more valid measure of profitability, both from a theoretical standpoint and for whatever group for whom financial statements may be intended. In the next chapter we will try to arrive at some sort of conclusion regarding the utility of this measure to the shareholder or prospective investor.



## CHAPTER VI

### SUMMARY AND CONCLUSIONS

The precepts of conventional accounting have long been relied upon by users of financial accounting information. The accounting profession, in its adherence to the superior merits of objectivity and auditability, has perpetuated the conventions of the historical cost basis and the stable dollar assumption. What must be recognized, however, is that the tenets of conventional accounting were fostered and became entrenched in an era when general price instability was not a serious economic concern. During the postwar period, since 1945, the general price level has risen by over 100%, as measured by the GNP implicit price deflator, thus raising serious question as to the validity of financial statements based on historical cost figures.

Management, in recognizing the deficiencies of conventional accounting practice, establishes managerial accounting systems in accordance with its own particular requirements and collects accounting information in the form most useful for its purposes. It is thus able to refine internal management information to take account of the effects of a rising price level. Indeed, business and industry as a whole has been somewhat successful in mitigating the effects of rising prices through tax concessions permitted by accelerated write-offs of fixed assets and LIFO-based inventory.

However, the realm of managerial accounting is considered quite apart from "pure" accounting practice and theory, upon which financial accounting and thereby published financial statements are based.

The reasons why the accounting profession has been reluctant to depart from its conventions predicated on a stable dollar are both numerous





and varied. One of the arguments against digression from historical cost rests upon the conception of financial accounting as a "stewardship" function, whereby the professions only responsibility is to account for the dollars actually invested by shareholders or investors in the business. These people argue that any attempt to adjust for the effects of a rising price level is clearly beyond the realm of financial accounting.

Another argument has been that the level of price instability experienced in the U.S. over the past two decades is not severe enough to warrant a departure from conventional accounting practice. In counter argument, it is immediately recognized that although per annum inflation has averaged only 3-4%, the cumulative effects have been substantial.

A third argument has been that it is impractical to adjust all financial statement items for changes in the price level and that there is no suitable basis for doing so.

From a practical standpoint, perhaps the underlying cause for the failure of the accounting profession to recognize the effects of a rising price level has been the subordination of the Balance Sheet to the Income Statement and the emergence of income determination as the principal concern of financial accounting. Coordinately, insofar as there is presently no evidence that a departure from historical cost would be accompanied by a change in the determination of taxable income while, as was pointed out above, the rising price level is somewhat alleviated through tax treatment of accelerated depreciation write-offs in income determination, accountants have seen little practical value in changing balance sheet values.

On the theoretical side the greatest opposition to departure from historical cost is the fear of loss of objectivity in determination of asset values. It is reasoned that anything less than an arms-length



transaction in determination of asset values results in significant loss of objectivity. In juxtaposition is the consideration of relevance which was pointed out may properly overrule pure objectivity.

In view of the fact that financial accounting information, based on what is often recognized as somewhat inadequate accounting conventions, provides the basis by which the users of financial statements must evaluate a business, one must seriously consider what effect a rising price level may have on such evaluations. Regulatory agencies, security analysts and some others for whom financial statements are intended are generally sufficiently knowledgeable to make their own adjustments to reported figures to counter the effects of a rising price level. The same cannot be presumed for shareholders and other small prospective investors, whom, it has been asserted, are generally recognized as the principal users of published financial statements. Such persons must usually rely strictly upon the information presented to them in published statements in making decisions concerning whether to invest or disinvest.

Of all of the items appearing on the Balance Sheet, the one that most acutely signifies the effects of a continuously rising price level and therefore the deficiencies of historical cost, is the category of depreciable fixed assets. The relatively long life and low rate of turnover of such assets means that they will be the most seriously affected by the cumulative effects of inflation. Moreover, the valuation base of fixed assets serves as the basis for periodic depreciation and thus acts as a determinant of income.

Insofar as the preservation of the stockholders' investment is concerned, conventional accounting practice fails in its stewardship function which in turn affects both Balance Sheet and Income Statement figures. There



is reason to believe that when a person makes an investment in a company the dollars used for that investment could have been used by that person for any other purpose whatsoever. Presumably then his interest lies in the preservation of that investment in terms of the purchasing power of the original dollars invested, which is what management is charged with.

Adherence to historical cost appears to have caused management to fail in this responsibility, both in inadequate representations on the Balance Sheet in its stewardship function, and in a partial return of purchasing power capital precipitated by its means of income determination. It has been established that the fixed asset category bears the greatest effects of a rising price level over time and that the individual shareholder or prospective investor is considered the primary user of financial statement information as presented. These two factors have thus been defined as the principal focus of this paper, which has as its stated purpose an investigation of whether some alternate basis of valuing fixed assets would provide a better measure of profitability to the shareholder or prospective investor.

A number of alternative basis for valuing fixed assets have been considered. Market value provides for presenting that amount that could be realized in liquidation. It is immediately evident that not only is the determination of such an amount exceedingly difficult, but would seem to bear little relevance to a going concern.

Another basis discussed at some length is economic value, which would be based on the discounted value of anticipated future cash flows. This basis has obvious theoretical merit in that it is apparent that the value of an asset to a business is the revenue stream it produces. Equally obvious, however, are the measurement difficulties and practical limitations.





First of all, it is extremely difficult, if not impossible, to estimate with any certainty the amount of future revenues accruing. Secondly, there are many instances whereby revenues accrue by virtue of the use of two or more fixed assets in combination, with allocation of revenues to individual assets usually a subjective determination at best. Finally, it is generally assumed that the revenue producing abilities of a business as a whole exceeds the summation of revenue streams attributable either via subjective allocation or otherwise to individual assets. For these reasons it is concluded that economic value, despite its theoretical merits, is too impractical for widespread applicability.

One of the alternative basis of valuation receiving the most consideration is the replacement cost/current cost basis. As pointed out in Chapter IV, there is occasionally some delineation made between the two separate terms, but they are most often used interchangeably and for all practical purposes can be considered part and parcel of the same concept. The position of the advocates of replacement/current cost seems mostly to derive from deficiencies in income measurement via insufficient depreciation charges. These people see the purpose of depreciation as being a source of funds through which assets may be financed to replace those consumed in the business. To the extent that reproduction cost of the same asset or replacement cost of an asset which is a technological improvement exceeds the cost of the asset presently being amortized through periodic depreciation charges, the historical cost basis is deficient.

Replacement/current cost presents many difficulties both practical and theoretical in nature. In the first category the most serious problem is one of measurement. The methods generally used in the absence of the current purchase price of a like asset are appraisal and index numbers. Of



the former it may be said that such a means of valuation is both costly and excessively subjective. Index numbers are a less expensive and thereby a more practical means of valuation, yet such index numbers aim at the measurement of specific purchasing power which leads to a consideration of the choice of the index to be used. Again subjectivity must play a significant role in regard to this latter facet.

Besides the objection to such a wide digression from objective determination, as indicated above, replacement/current cost is on otherwise shaky theoretical grounds. Firstly, carried to a logical extreme replacement cost can never be determined, as replacement will occur in a future of uncertain economic climate. Secondly, a logical extension of the concept would indicate that the asset has no value if replacement is not intended, which may well be the case in a majority of instances.

Due to the difficulties of measurement, the excessive loss of objectivity and the other theoretical limitations which would seem to preclude wide acceptance within the accounting profession, replacement/current cost is not extensively advocated as a suitable alternative to the historical cost basis.

The other alternative basis most widely discussed is price-level adjusted historical cost. This method aims at adjusting for changes in the general level of purchasing power by using a general price index to adjust the recorded historical cost of fixed assets. A number of general price indexes are available, including Consumer Price Index, Wholesale Price Index, and GNP Implicit Price Deflator, and again the choice of one or the other is largely a matter of subjective determination. Although ARS 6 endorses use of the GNP deflator, the indexes all measure general purchasing



power and follow one another rather closely.

There seems to be no overwhelming theoretical objection to the use of price-adjusted historical cost, and those who oppose its widespread adoption as an alternative to pure historical cost do so on the basis that either inflation is not sufficiently severe to warrant such a measure, or that it is not the function of accounting to reflect changes in the price level. The experience of the past two decades belies the first point, while the second seems to suggest that accounting has no responsibility to provide relevant and reliable information to external users.

The AICPA has endorsed the use of general price level adjusted financial statements, but the profession's tenacious adherence to the historical cost basis has caused it to qualify its endorsement to mean that such information should be offered in the form of supplementary statements. However inasmuch as the implementation of general price adjustments is wholly practical and feasible, their use is not subject to theoretical objection, the figures represented bear a direct relation to historical cost, and most importantly such figures appear to be more useful and relevant in a changing economic climate, the advocacy of the use of this basis as a replacement for historical cost seems entirely sound, logical, and justifiable.

Financial statements are intended to portray the financial condition, operating results and general "well-being" of the firm. For the shareholder or prospective investor using the statements it is generally assumed that some measure of "profitability" will be of prime interest. Profitability is often thought of in terms of "net operating margin on sales," but such a measure is insufficient in that it fails to consider the amount of capital employed to produce sales revenue. Capital employed





is thus important in both the amount of investment necessary to produce a certain level of revenue and as a measure of managerial efficiency in utilizing the invested capital. Accordingly, profitability is more appropriately measured in terms of net operating margin to some capital base. For our purposes we have used current assets and gross fixed assets as the capital base, thus deriving a measure of profitability called Return on Investment, or ROI.

Insofar as fixed assets make up a significant portion of the investment base and depreciation charged against those fixed assets acts as a determinant of net operating margin, the basis used for valuing fixed assets will significantly effect both numerator and denominator of our measure of profitability and thereby meaningfully influence ROI.

During a period of generally rising prices, the capital base which is tied to historical cost is understated, while net operating margin, which is derived by matching costs and revenues of a different purchasing power, is overstated. In such a situation conventional accounting figures yield an inflated ROI value, while the individual shareholder receives a partial return of his invested capital in the form of dividends measured as operating profit.

Restatement of accounting figures by price-adjusted historical cost would alleviate such a situation by valuing the asset base in terms of current purchasing power and would match costs and revenues of the same purchasing power, thereby preserving invested capital. It has been argued that the differences between historical cost and price-level adjusted basis are insignificant in the evaluation of an individual firm and will "wash-out" over time. Yet it cannot be denied that measuring ROI on the historical cost basis will yield widely differing results for two otherwise



identical firms of which one is relatively new while the other is old and established. Such a situation thus precludes meaningful interfirm comparability and stands to mislead the prospective investor. Moreover, the accounting tenets of consistency and possibly disclosure may be denied. It must therefore be concluded that the use of a general price-level adjusted basis for valuing fixed assets provides a more valid measure of profitability.

It would seem that a shareholder or prospective investor in making a rational decision as to whether to invest or disinvest would utilize the information available to him in published financial statements to perform some calculation of comparative profitability, be it measured by ROI, as advocated in this paper, or by some other basis. However, such may not be the case. A number of persons have suggested that shareholders and prospective investors may be significantly more interested in anticipated cash dividend payments and anticipated capital gains, by way of market price of stock, than in any measure of profitability based on accounting figures. Thus, while the general price level adjusted basis may provide a more valid measure of profitability, whether such a measure provides greater usefulness to shareholders and prospective investors in making their investment decisions remains a moot question.



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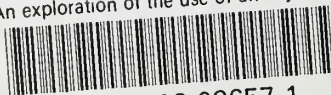
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